Practice First Exam AA

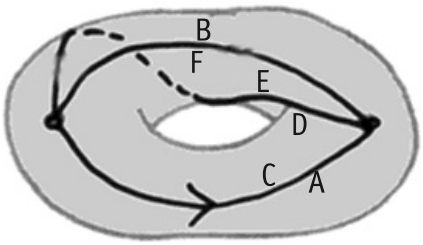
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

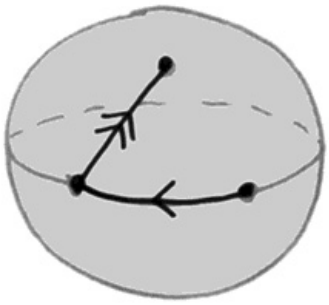
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

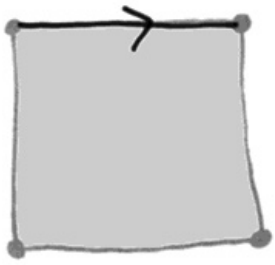
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

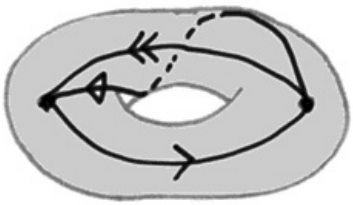
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





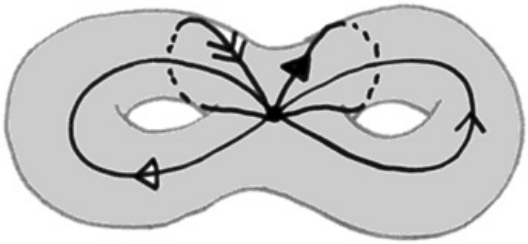
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

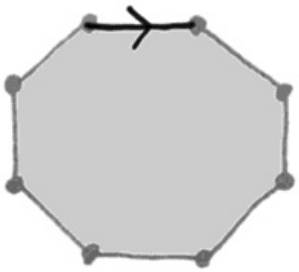
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

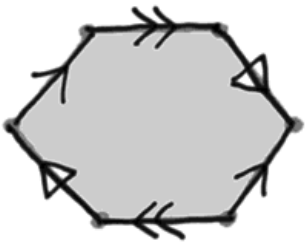
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



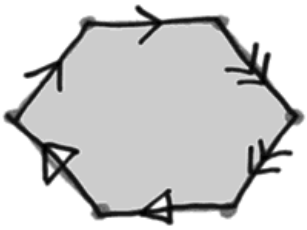


$+ v =$
$- e =$
$+ f =$
$\chi =$

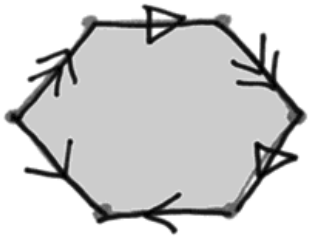
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



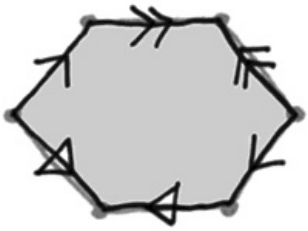
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



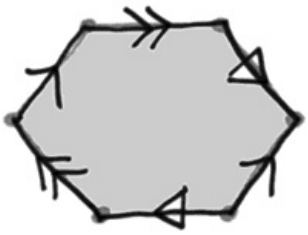
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



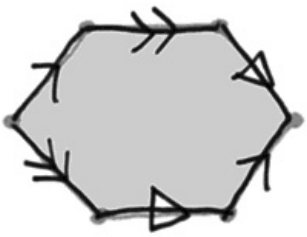
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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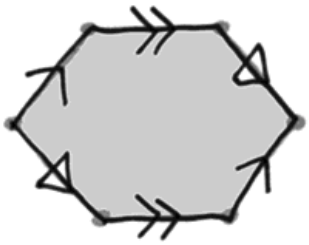
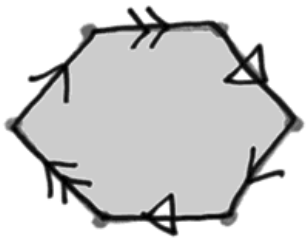
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AB

MATH V1011: Surfaces and Knots, Spring, 2003

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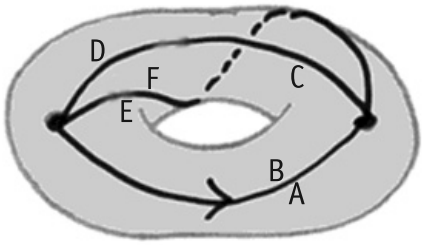

A						**A**

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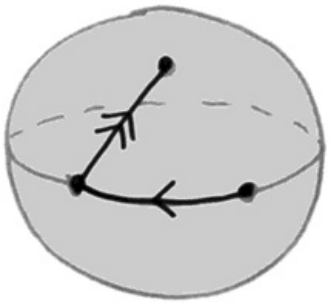

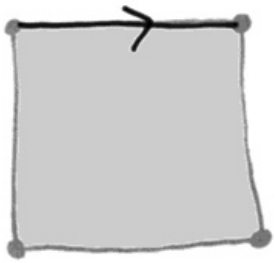

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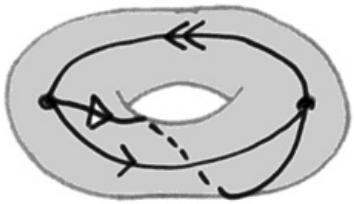

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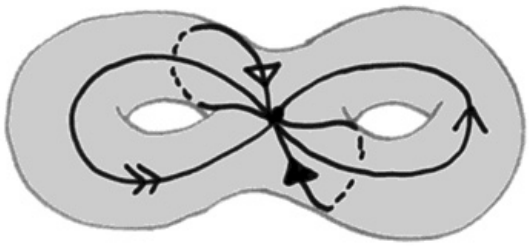

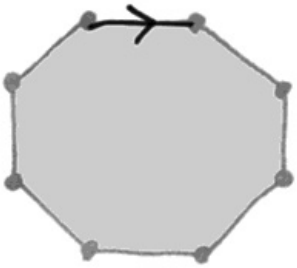

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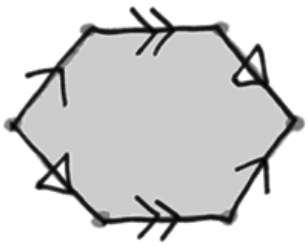
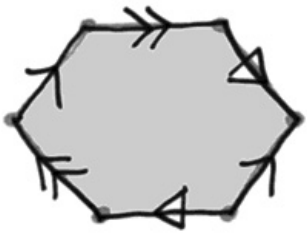


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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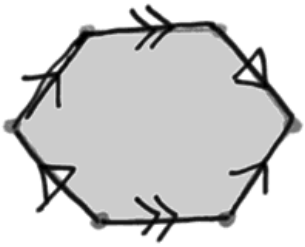
$+ f =$
$\chi =$
yes / no



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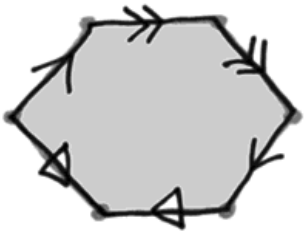
yes / no



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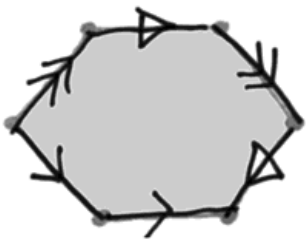

$+ v =$
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$\chi =$
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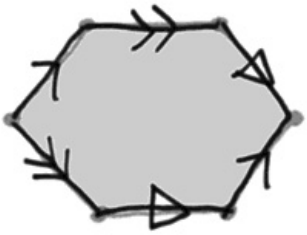

$+ v =$
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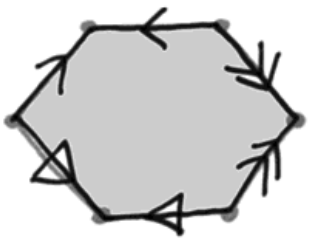
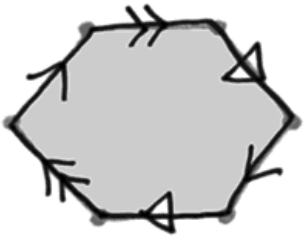
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AC

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

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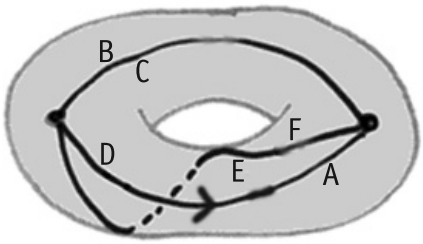

A						**A**

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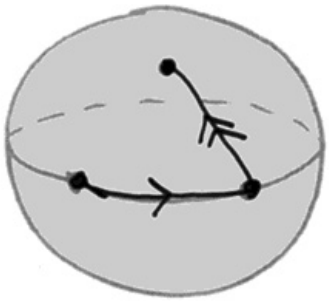

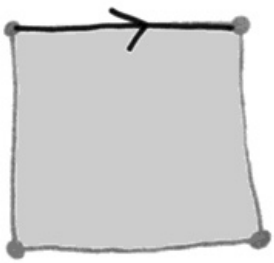

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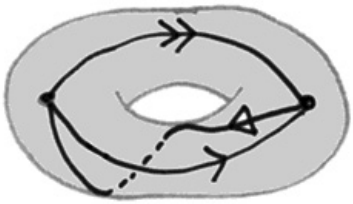

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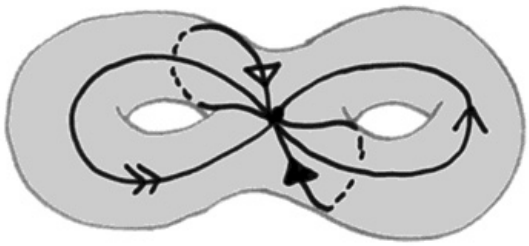

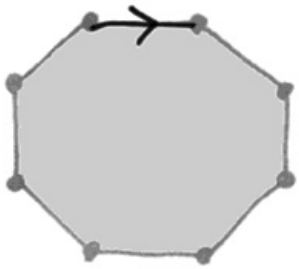

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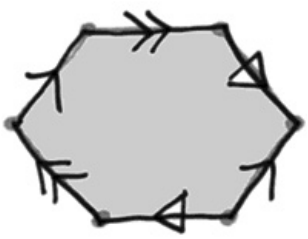
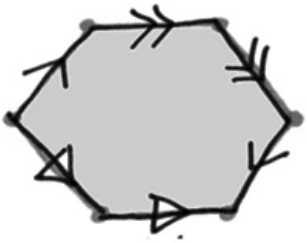
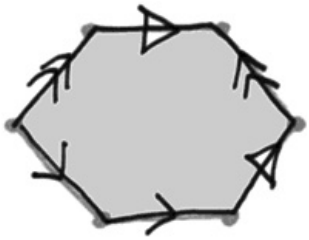


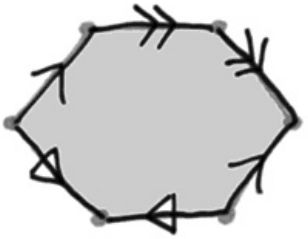
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
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$\chi =$
yes / no

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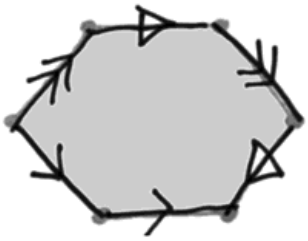

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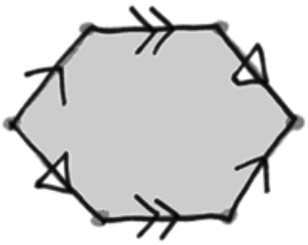
yes / no



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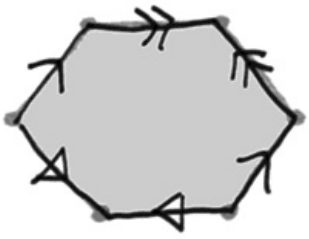
$\chi =$
yes / no



$+ v =$
$- e =$
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$\chi =$
yes / no

Practice First Exam AD

MATH V1011: Surfaces and Knots, Spring, 2003

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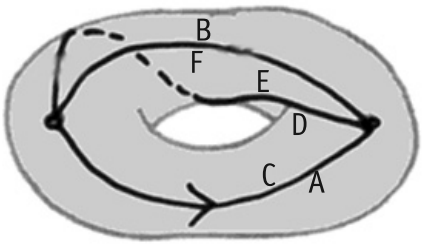
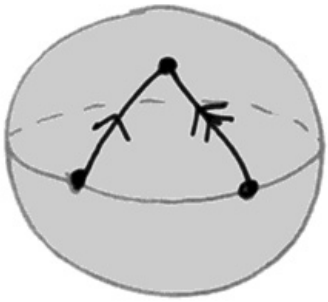
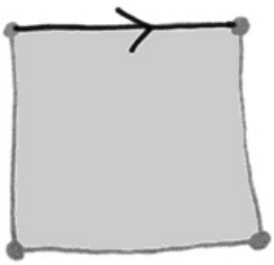


A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



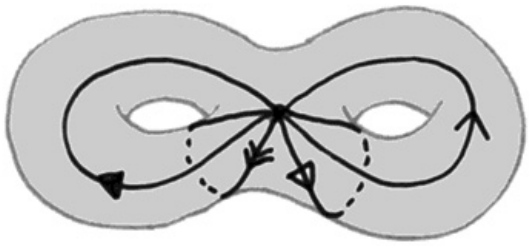


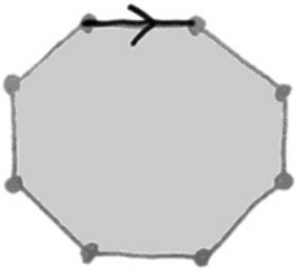
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

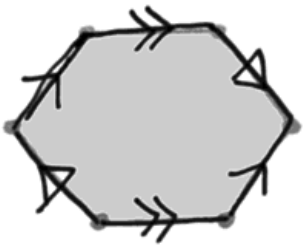
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



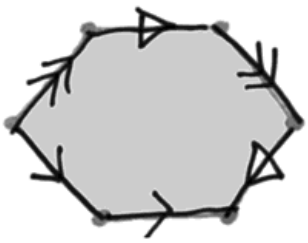


$+ v =$
$- e =$
$+ f =$
$\chi =$

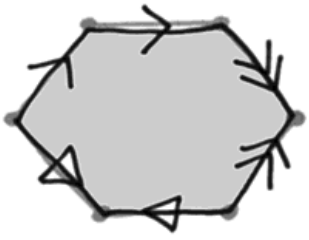
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



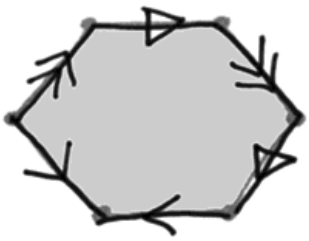
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



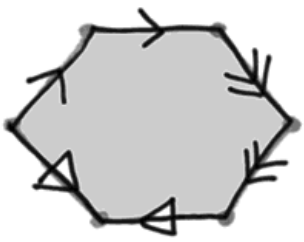
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



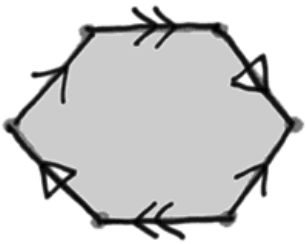
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



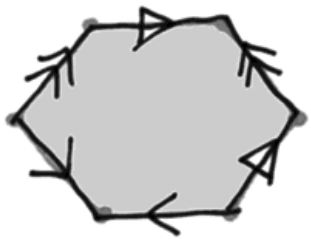
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



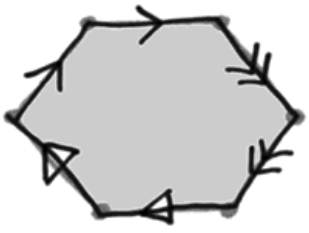
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AE

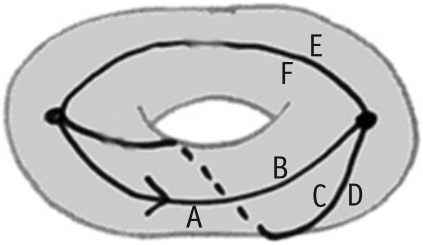
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

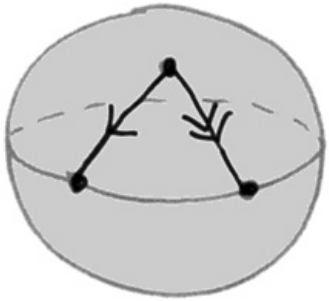
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

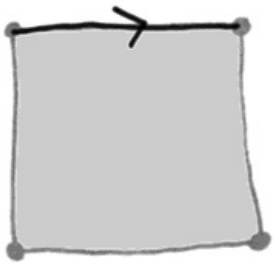
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

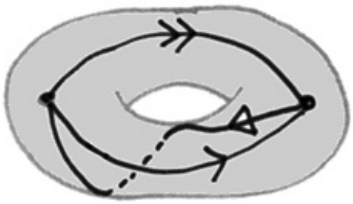
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





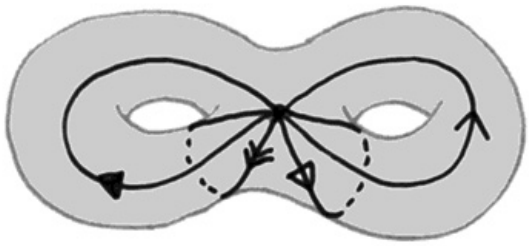
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

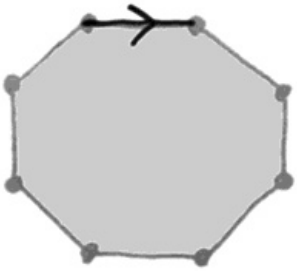
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

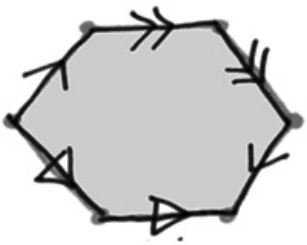
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



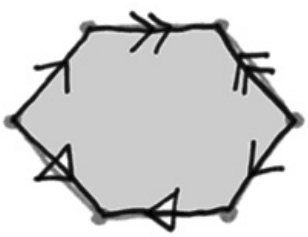


$+ v =$
$- e =$
$+ f =$
$\chi =$

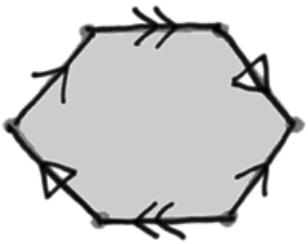
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



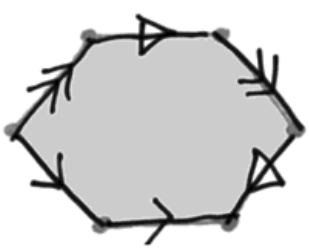
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



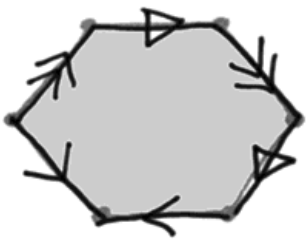
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



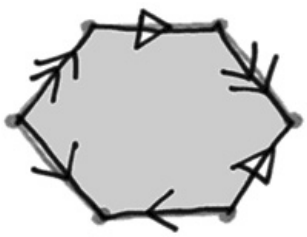
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



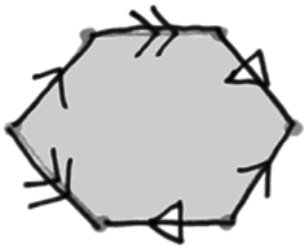
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



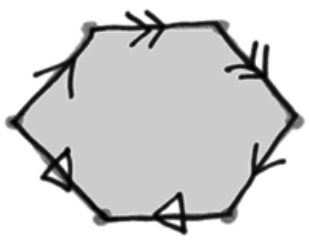
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AF

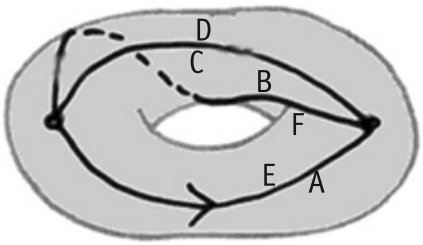
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

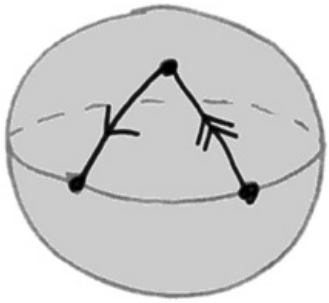
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

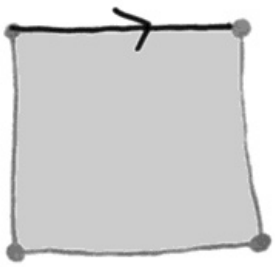
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

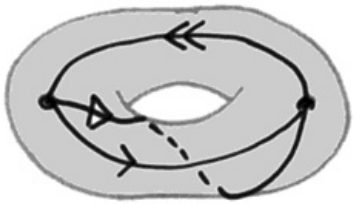
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





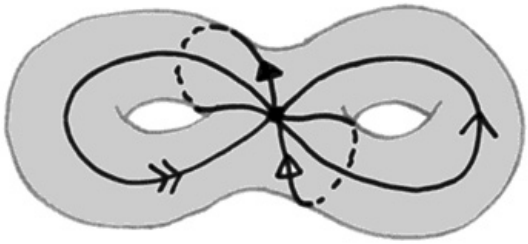
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

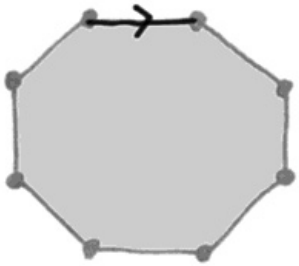
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

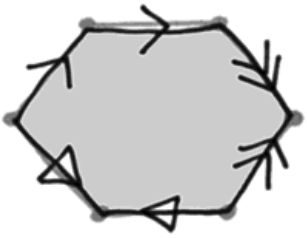
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



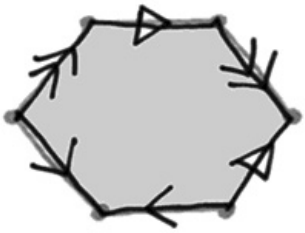


$+ v =$
$- e =$
$+ f =$
$\chi =$

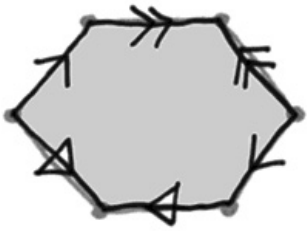
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



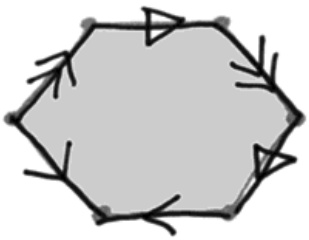
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



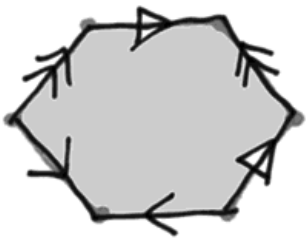
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



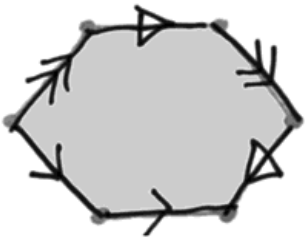
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



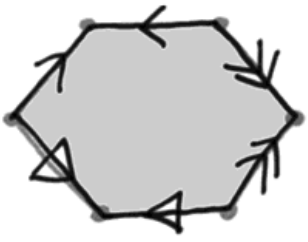
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



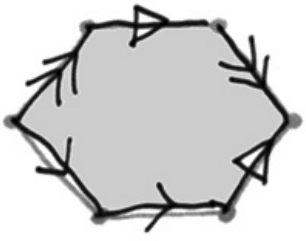
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AG

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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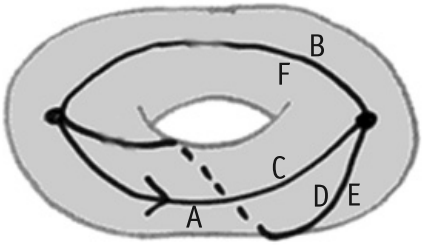
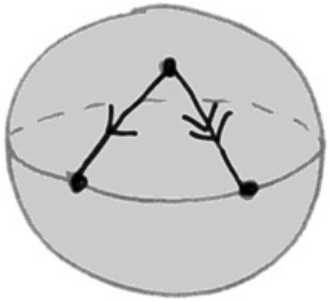
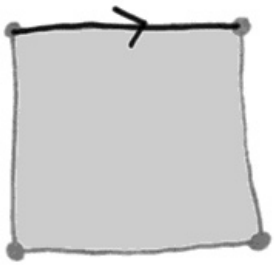


A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

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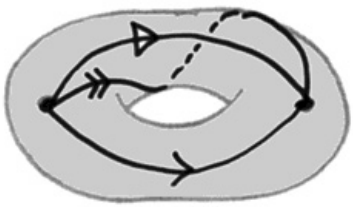
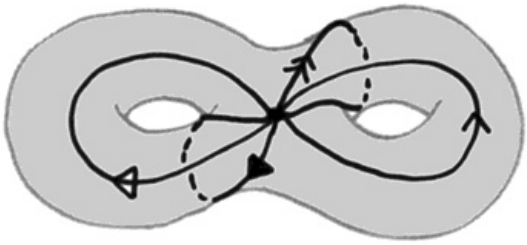
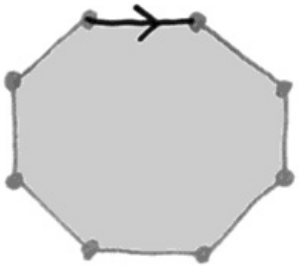


$+ v =$
$- e =$
$+ f =$
$\chi =$

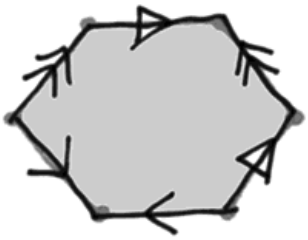
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



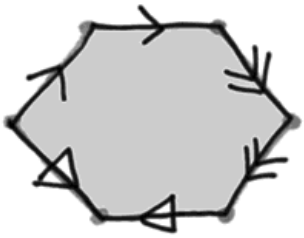


$+ v =$
$- e =$
$+ f =$
$\chi =$

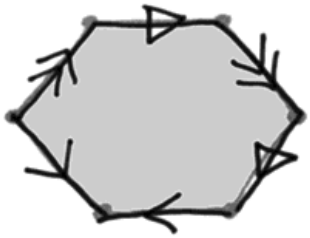
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



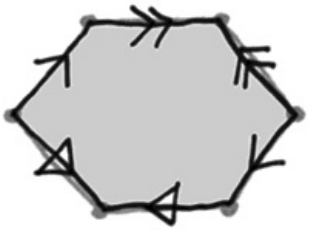
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



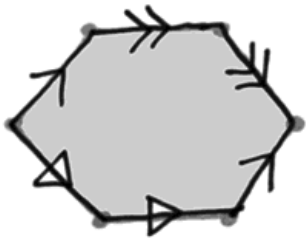
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



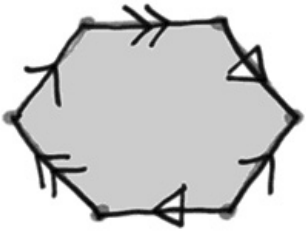
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



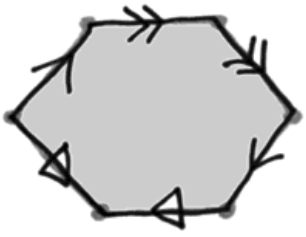
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



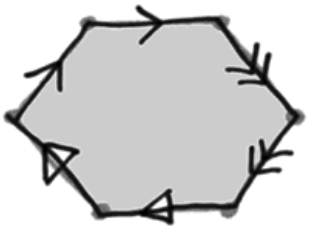
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AH

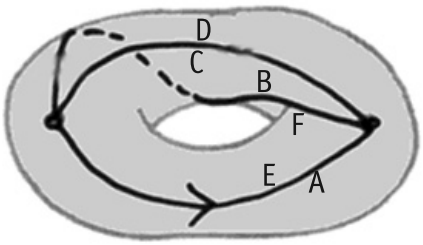
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

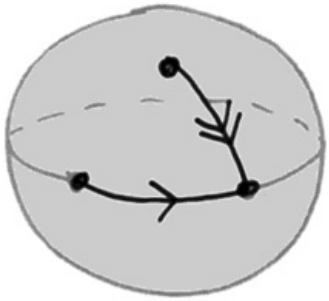
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

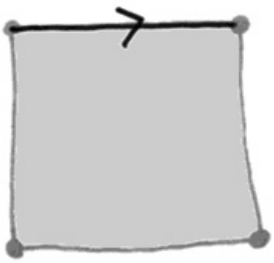
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



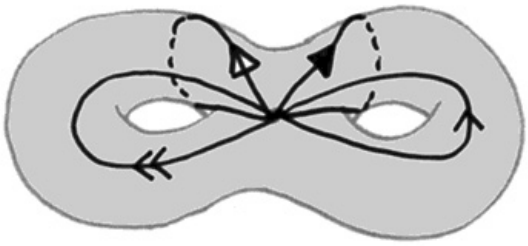


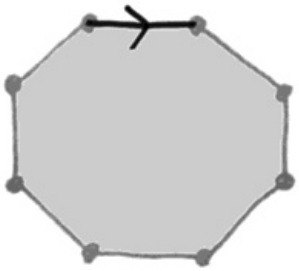
$+ v =$
$- e =$
$+ f =$
$\chi =$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.

$+ v =$
$- e =$
$+ f =$
$\chi =$

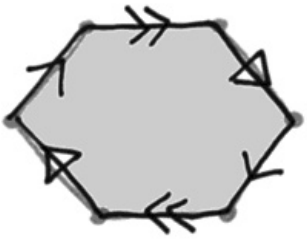
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



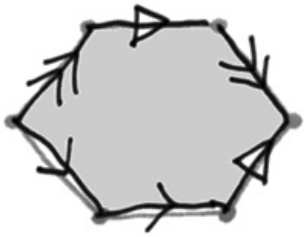


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

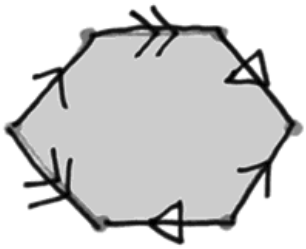
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



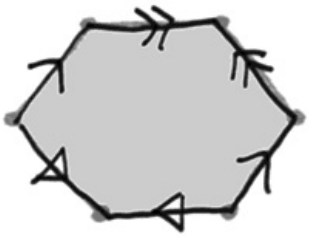
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



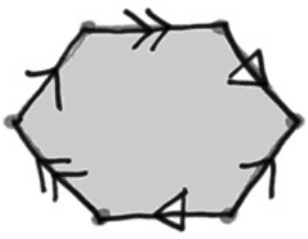
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



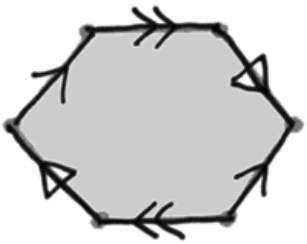
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



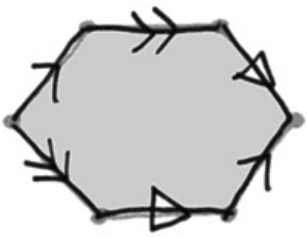
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



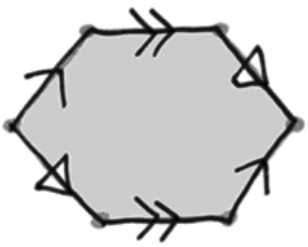
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam AI

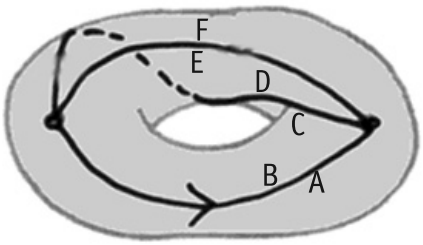
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

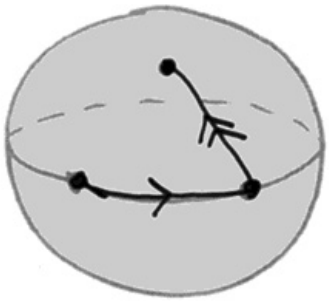
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

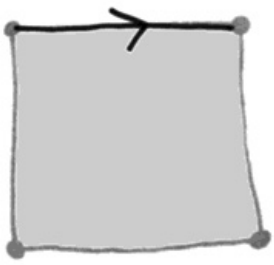
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

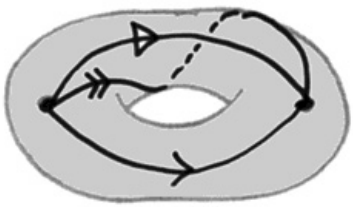
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





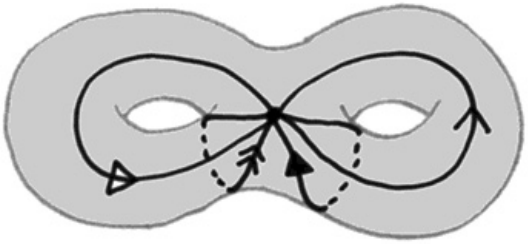
$+ v =$
$- e =$
$+ f =$
$\chi =$

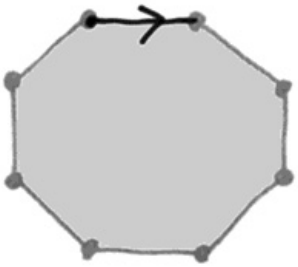
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

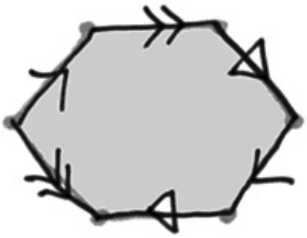
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



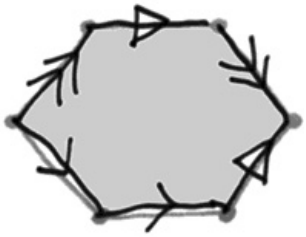


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

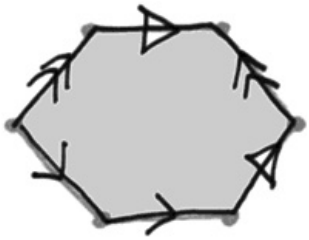
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



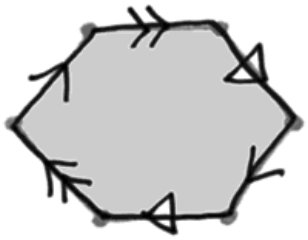
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



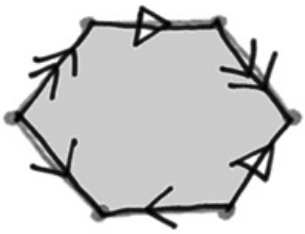
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



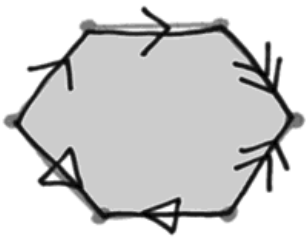
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



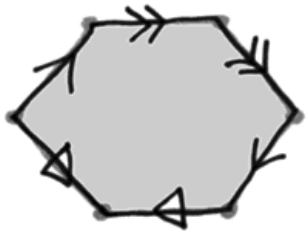
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



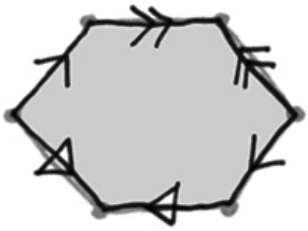
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam AJ

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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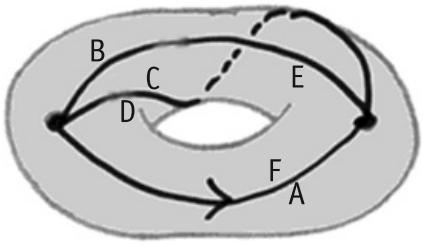
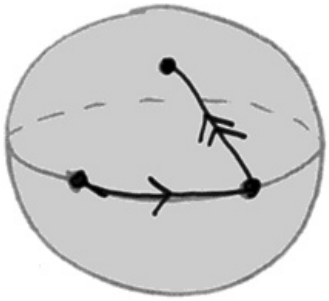
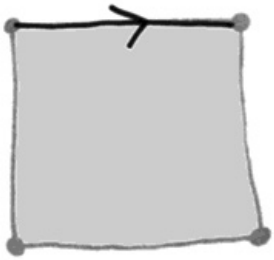


A						**A**

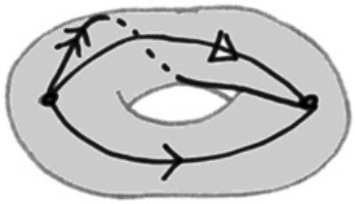
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
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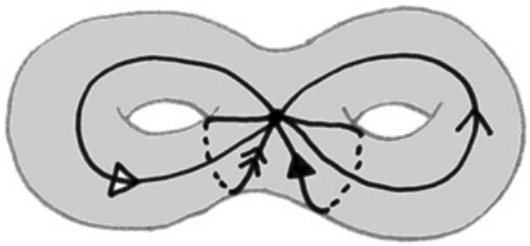
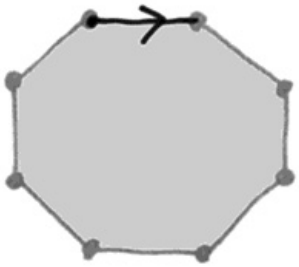
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





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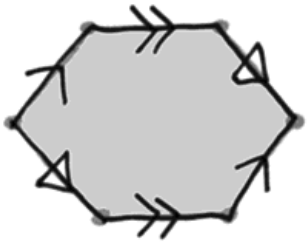
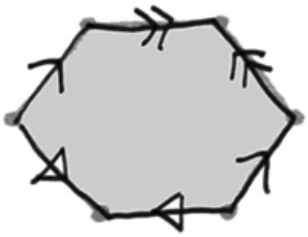
$- e =$
$+ f =$
$\chi =$

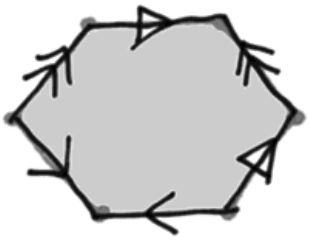
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



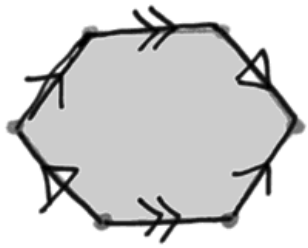
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



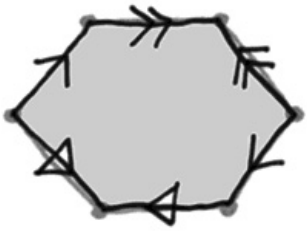
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



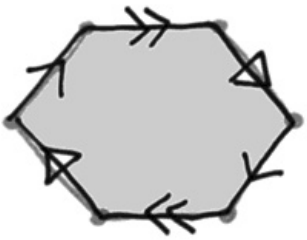
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



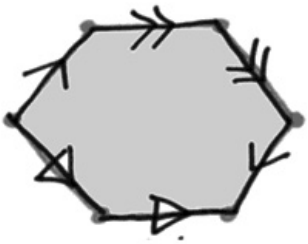
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



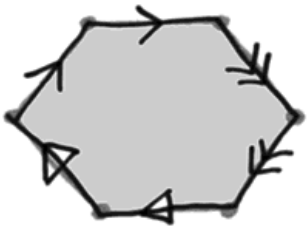
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AK

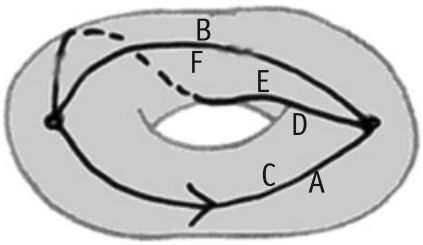
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

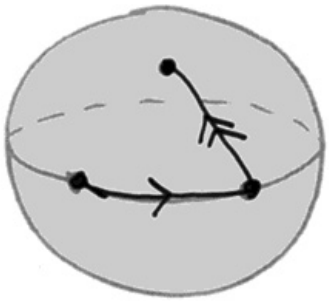
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

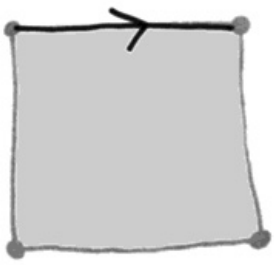
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

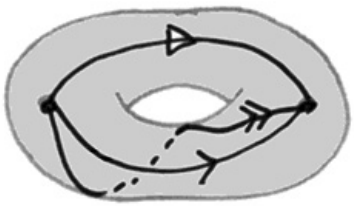
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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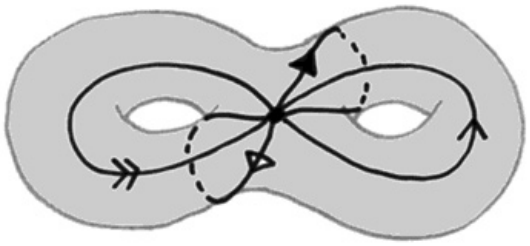

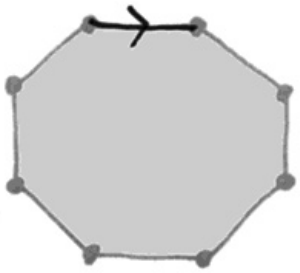

$+ v =$
$- e =$
$+ f =$
$\chi =$

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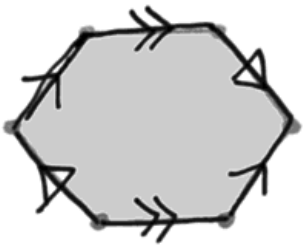
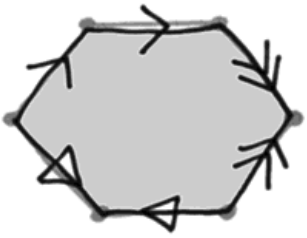
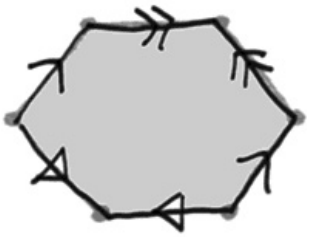


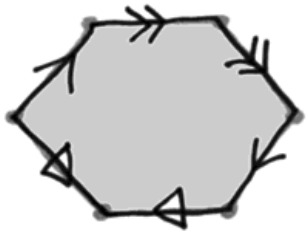
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



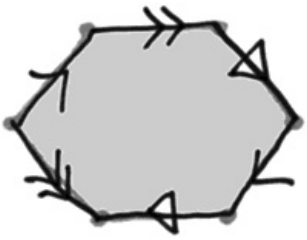
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



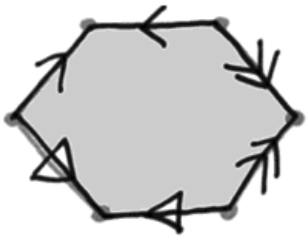
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



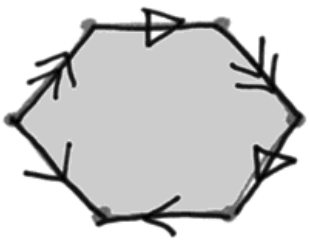
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



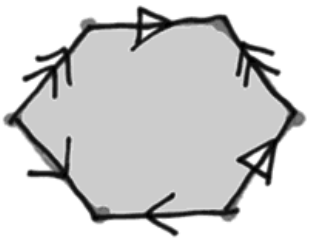
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AL

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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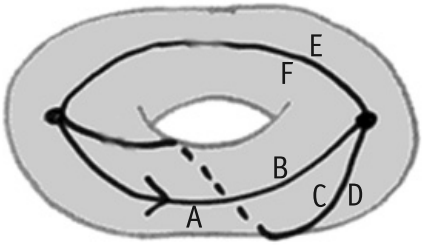

A						**A**

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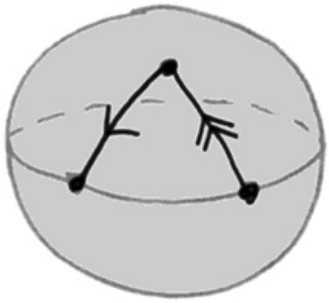

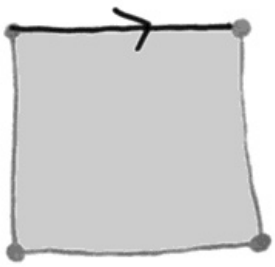

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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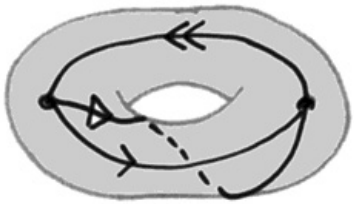

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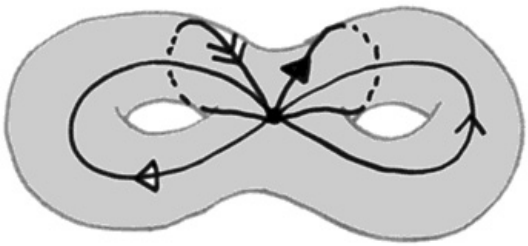

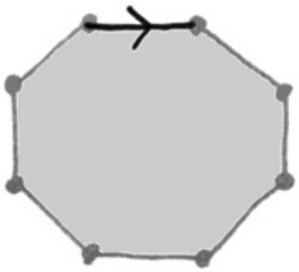

$+ v =$
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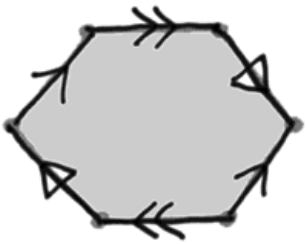
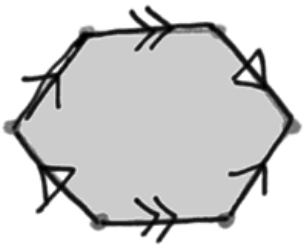


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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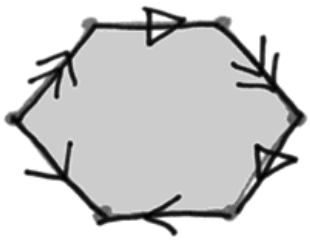
$\chi =$
yes / no



$+ v =$
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$+ f =$
$\chi =$
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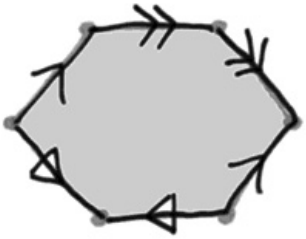

$+ v =$
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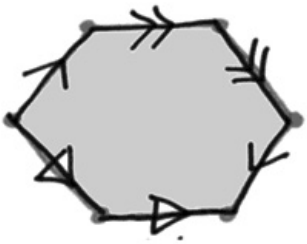
$\chi =$
yes / no



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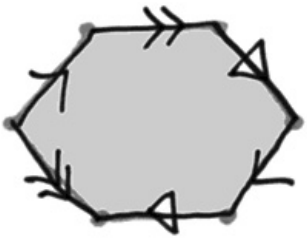

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$\chi =$
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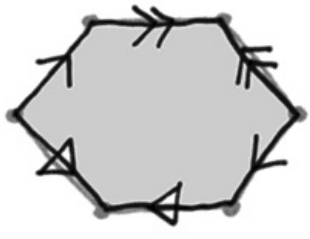

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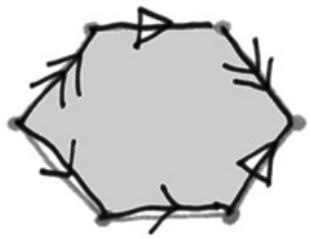
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AM

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

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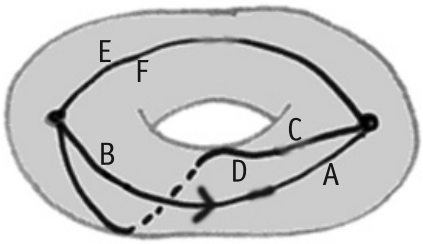

A						**A**

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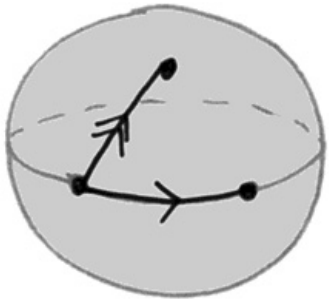

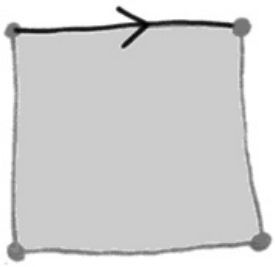

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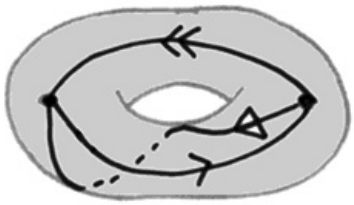

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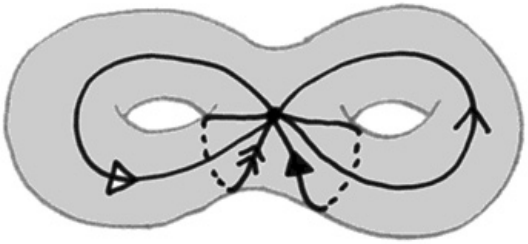

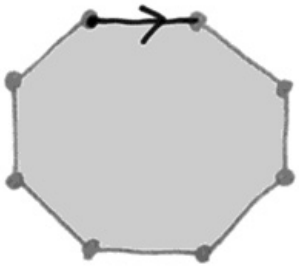

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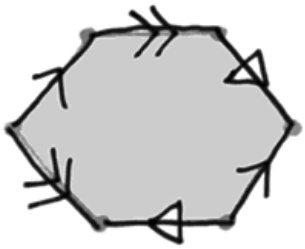

$+ v =$
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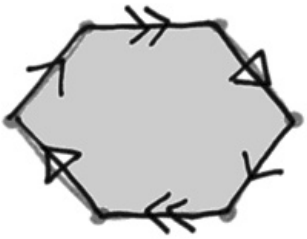
$\chi =$
yes / no



$+ v =$
$- e =$
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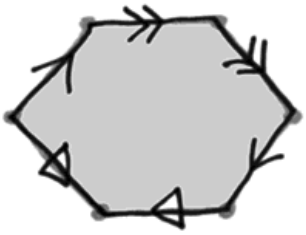
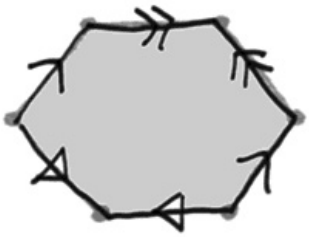
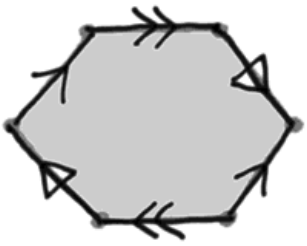
$\chi =$
yes / no



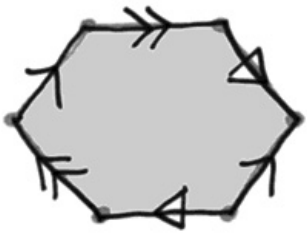
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



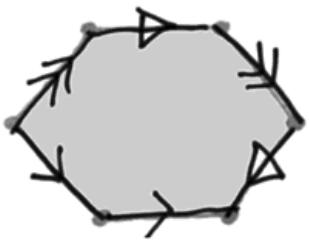
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



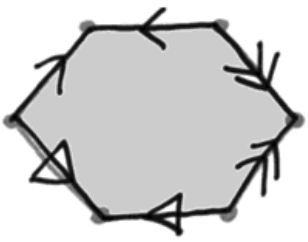
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam AN

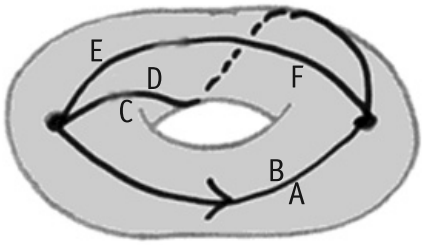
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

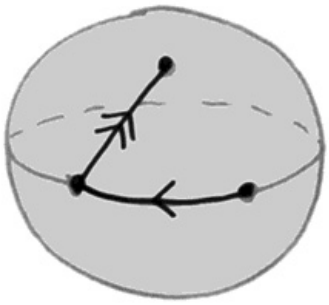
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

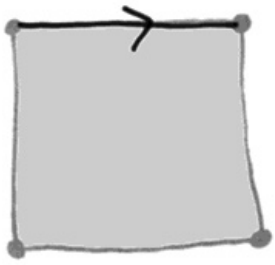
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

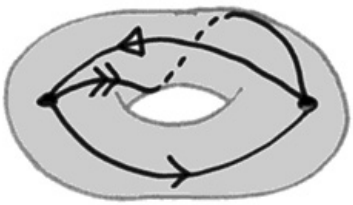
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





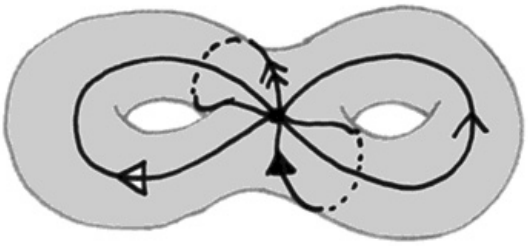
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

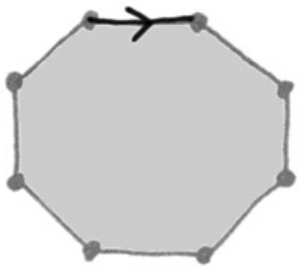
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

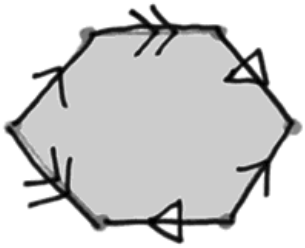
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



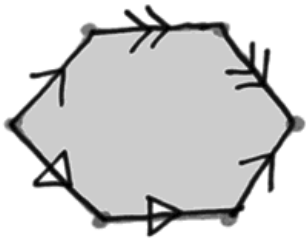


$+ v =$
$- e =$
$+ f =$
$\chi =$

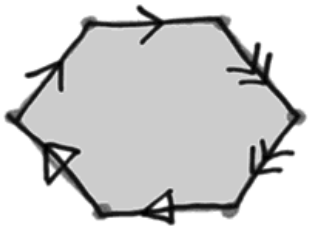
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



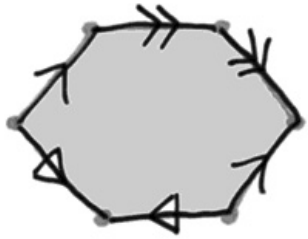
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



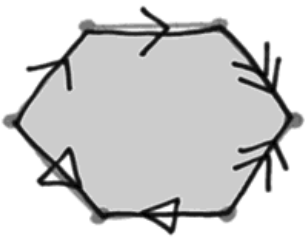
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



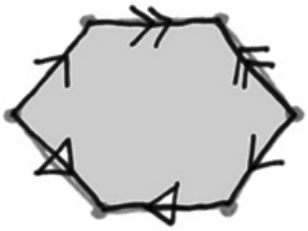
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



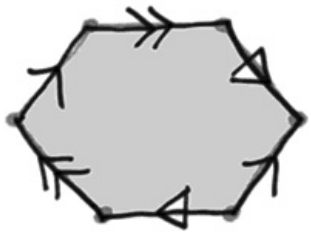
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



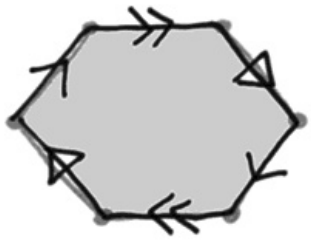
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BA

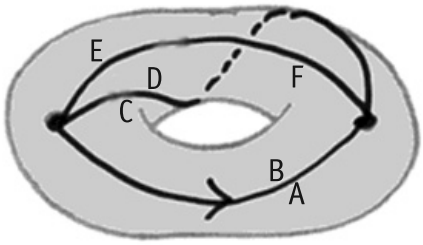
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

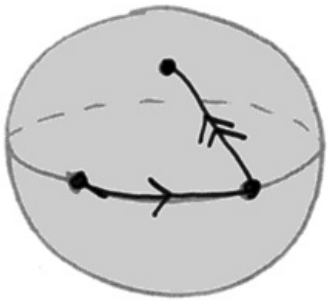
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

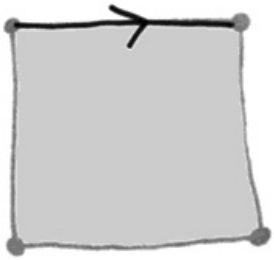
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

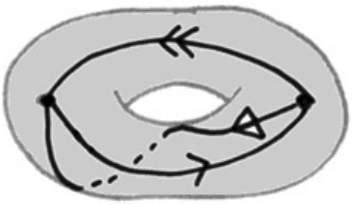
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





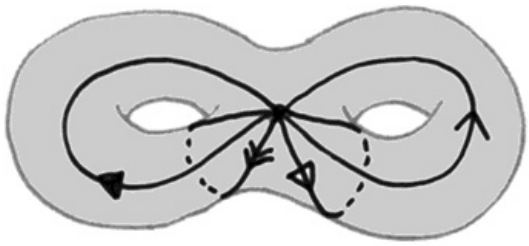
$+ v =$
$- e =$
$+ f =$
$\chi =$

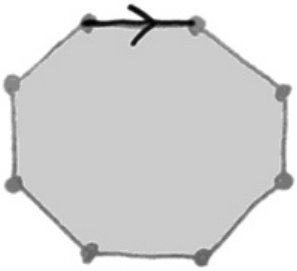
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

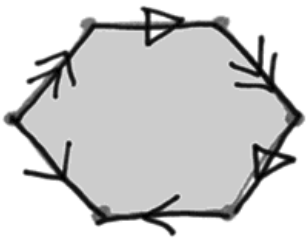
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



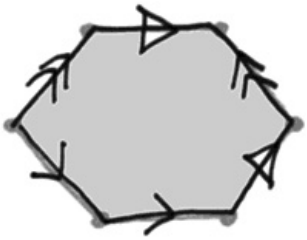


$+ v =$
$- e =$
$+ f =$
$\chi =$

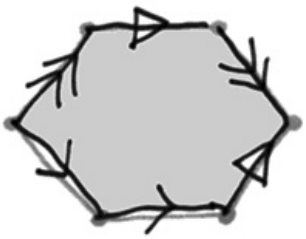
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



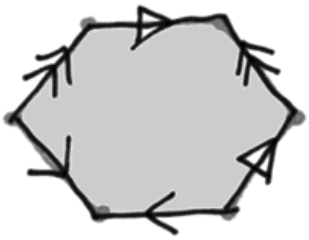
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



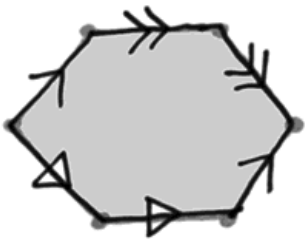
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



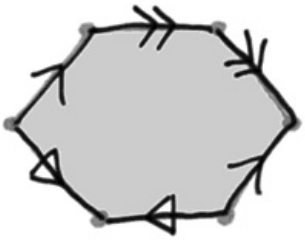
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



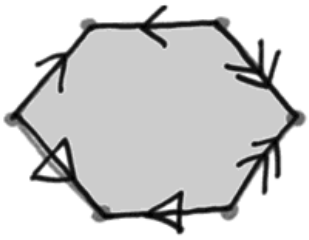
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



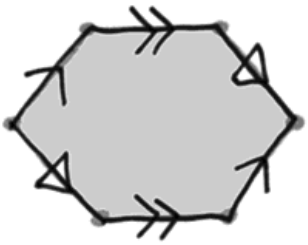
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BB

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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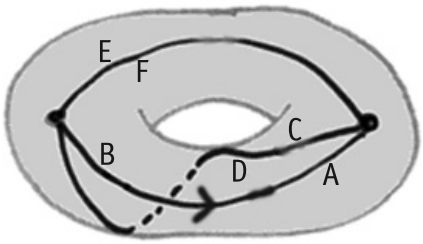
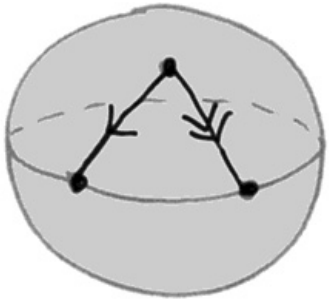
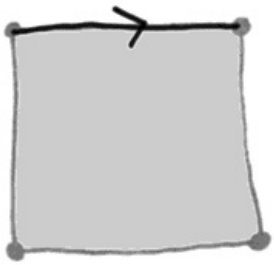


A						**A**

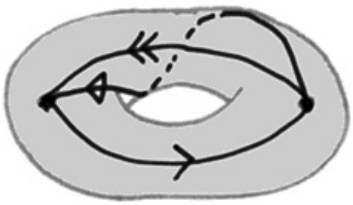
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





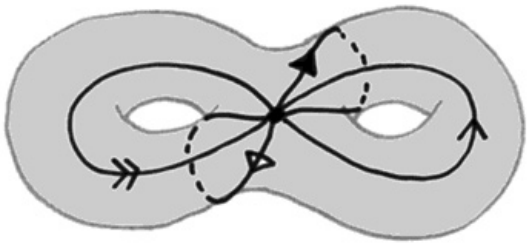
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

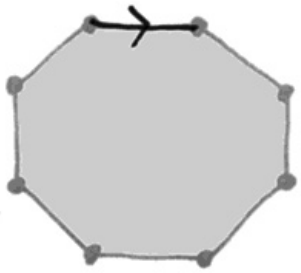
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

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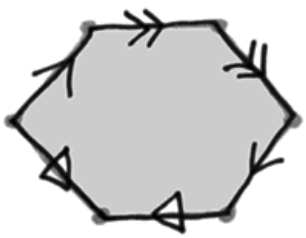
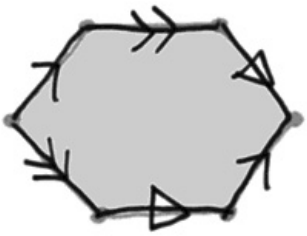
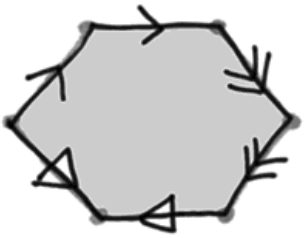


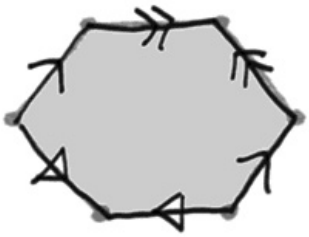
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



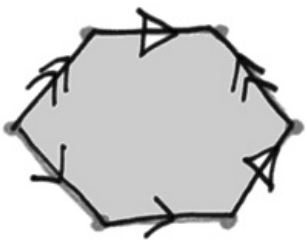
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



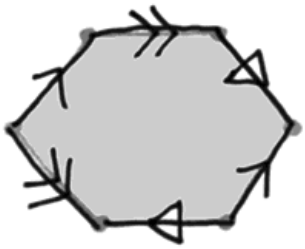
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



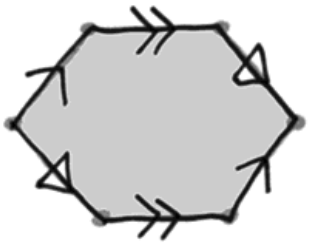
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



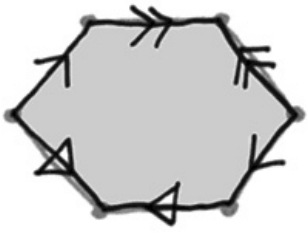
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BC

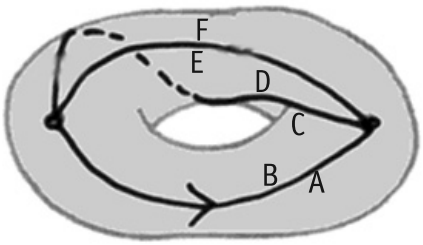
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

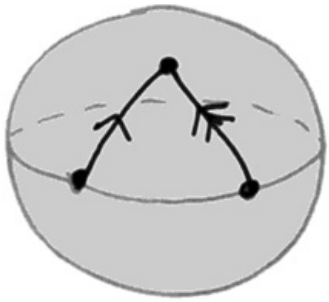
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

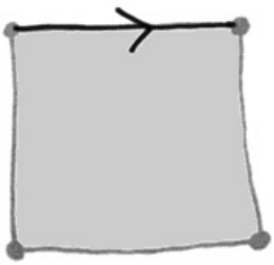
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

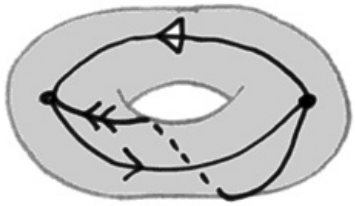
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





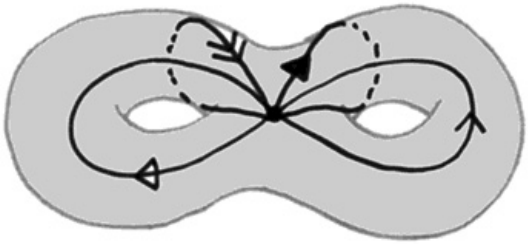
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

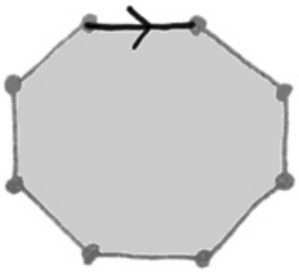
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

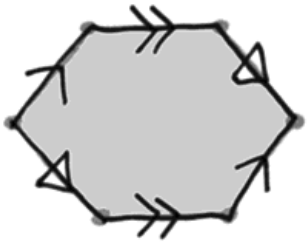
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



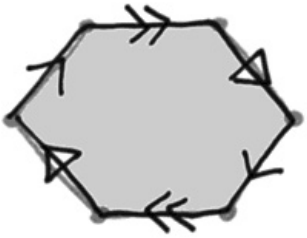


$+ v =$
$- e =$
$+ f =$
$\chi =$

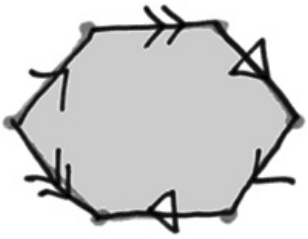
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



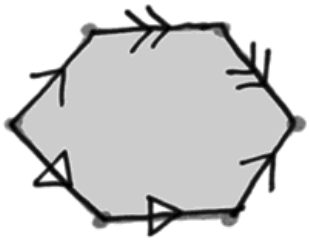
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



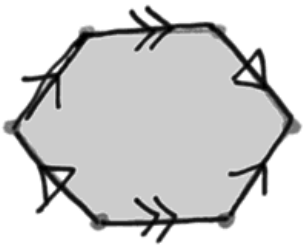
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



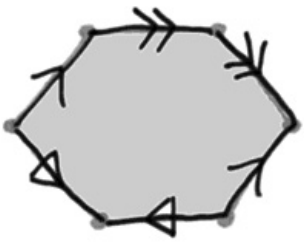
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



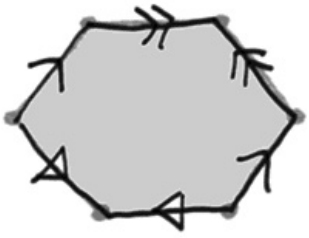
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



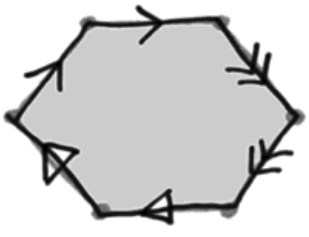
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BD

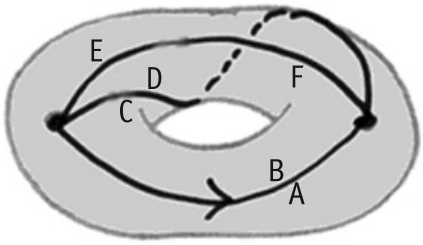
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

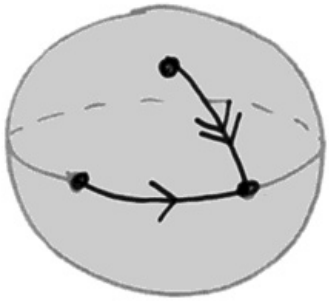
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

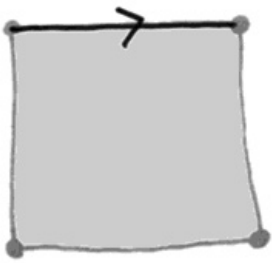
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



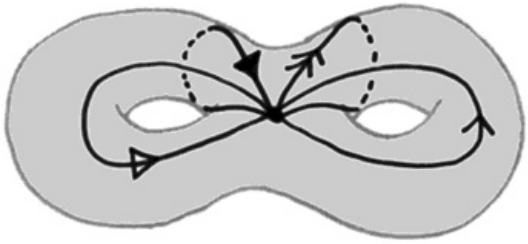


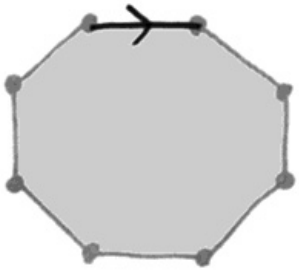
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

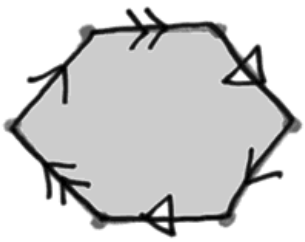
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



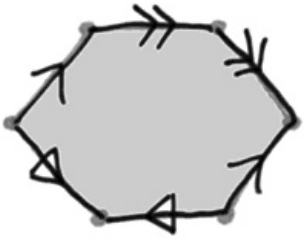


$+ v =$
$- e =$
$+ f =$
$\chi =$

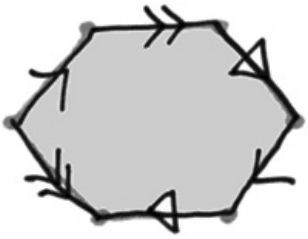
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



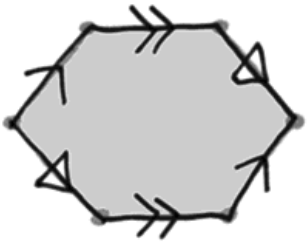
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



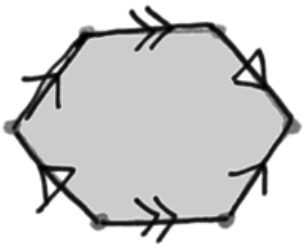
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



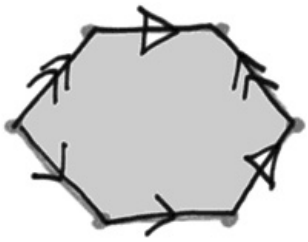
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



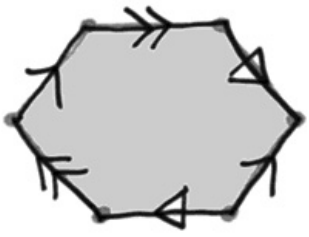
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



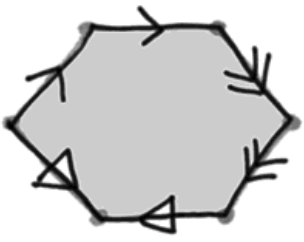
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BE

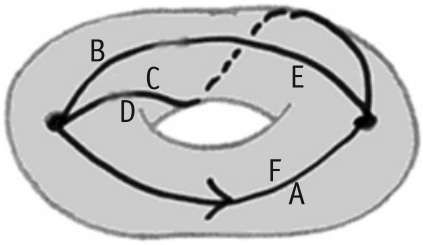
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

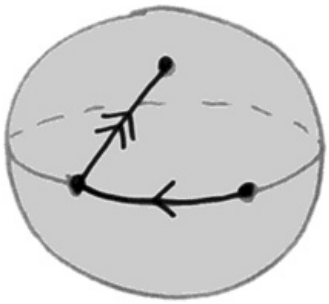
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

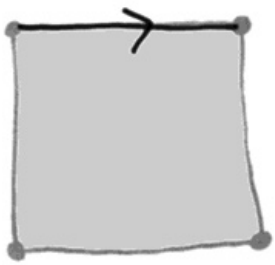
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

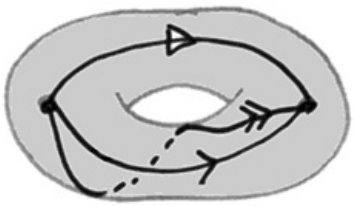
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





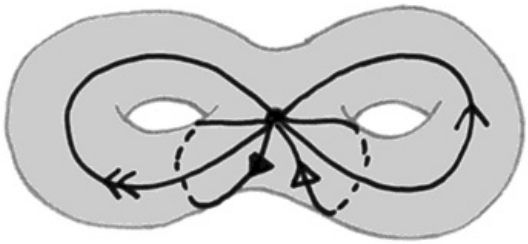
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

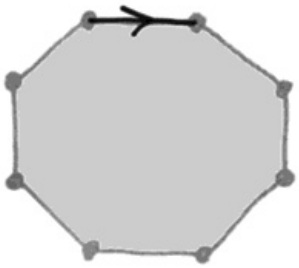
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

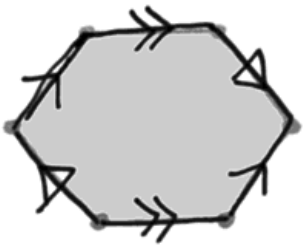
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



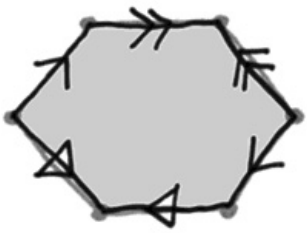


$+ v =$
$- e =$
$+ f =$
$\chi =$

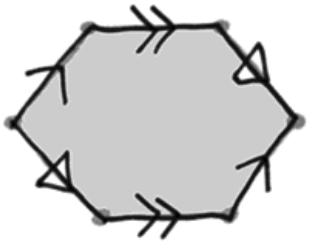
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



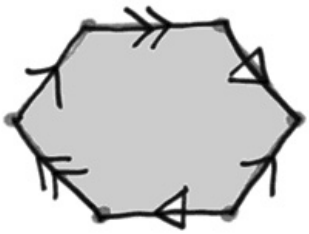
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



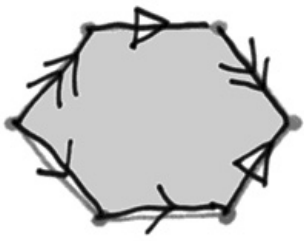
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



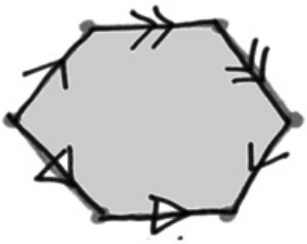
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



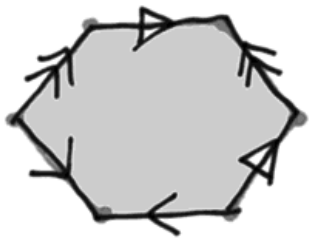
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



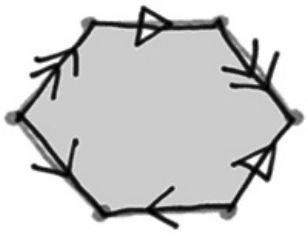
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BF

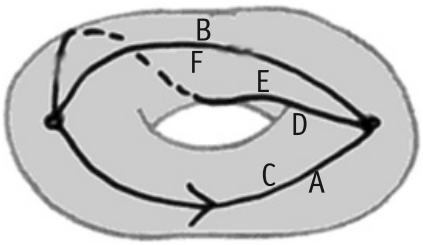
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

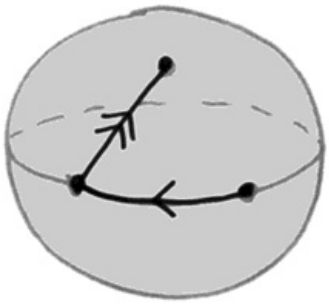
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

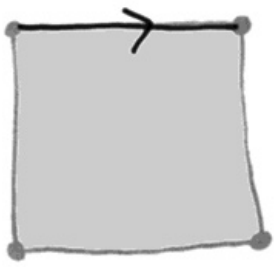
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

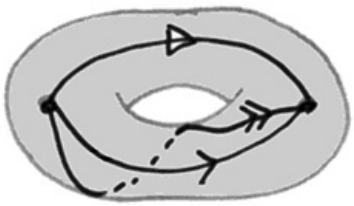
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





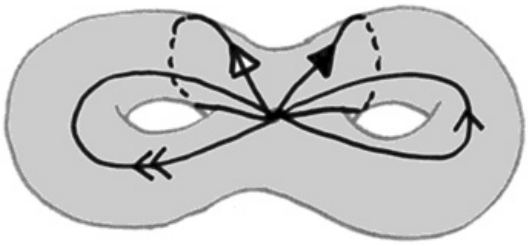
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

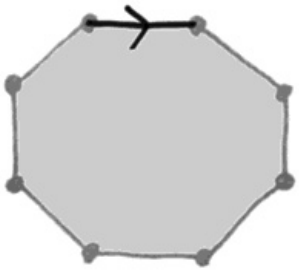
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

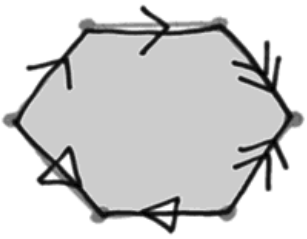
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



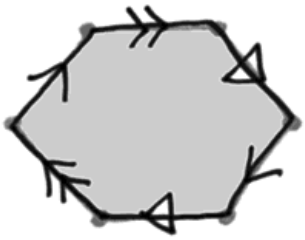


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

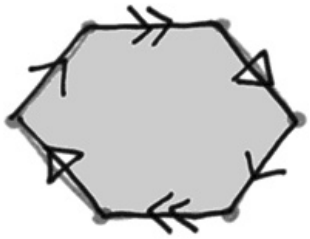
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



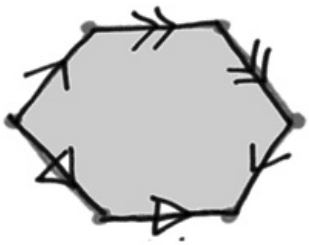
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



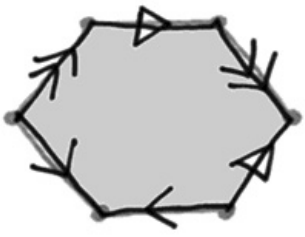
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



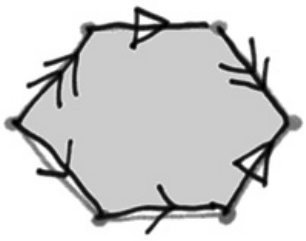
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



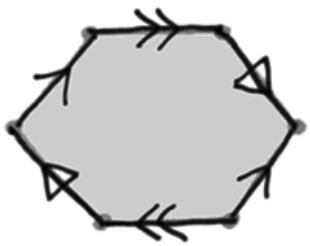
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



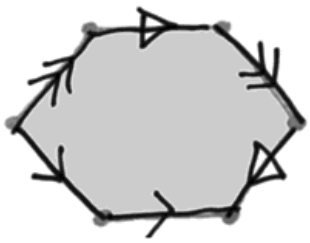
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam BG

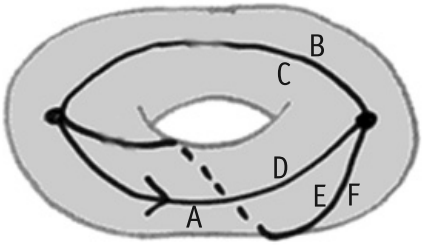
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

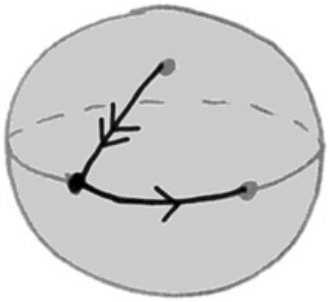
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

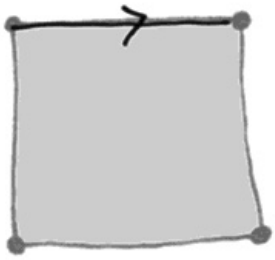
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



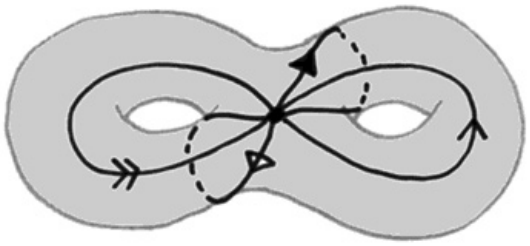


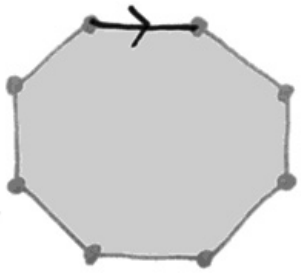
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

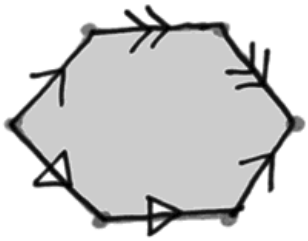
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



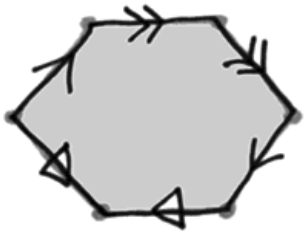


$+ v =$
$- e =$
$+ f =$
$\chi =$

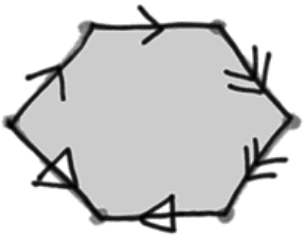
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



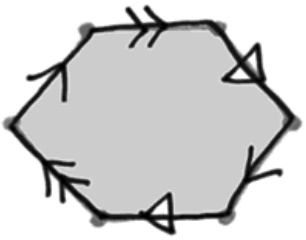
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



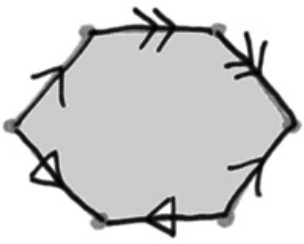
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



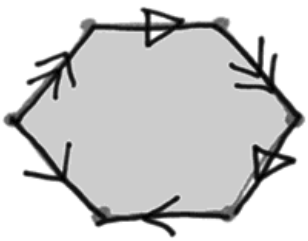
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



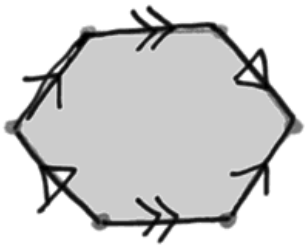
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



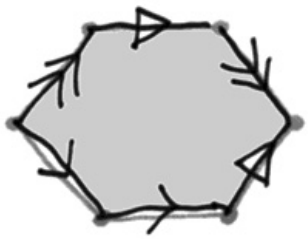
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BH

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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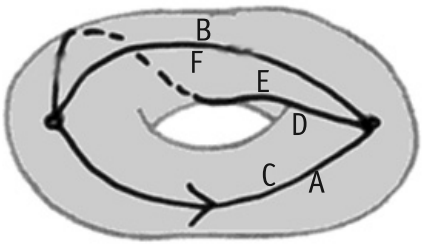
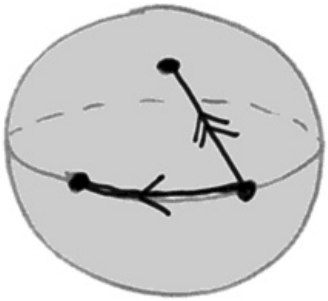
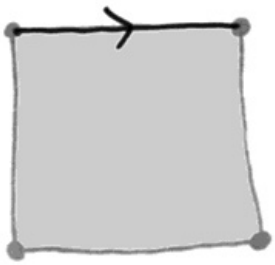
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

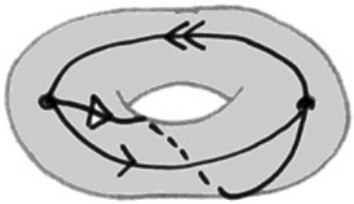
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





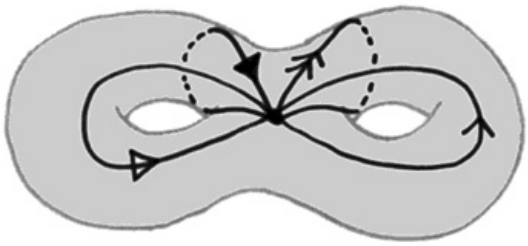
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

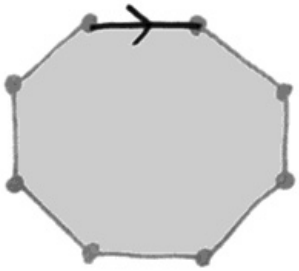
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

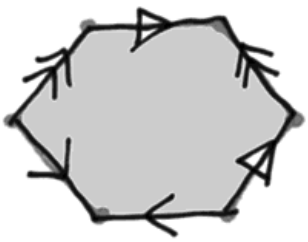
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



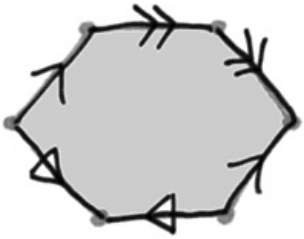


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

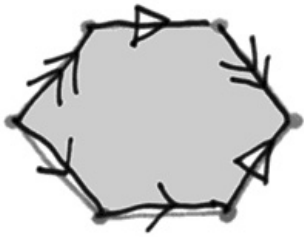
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



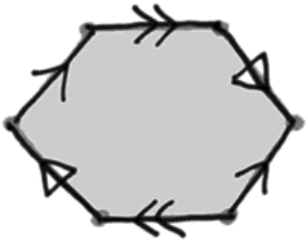
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



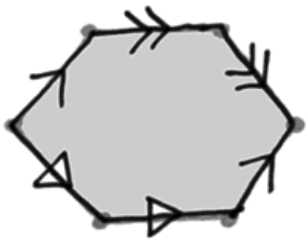
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



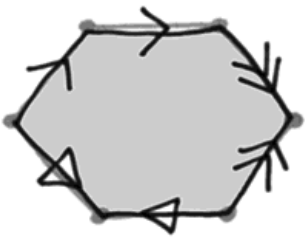
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



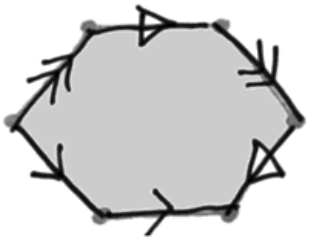
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



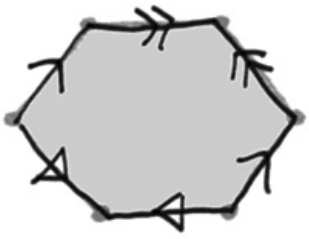
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam BI

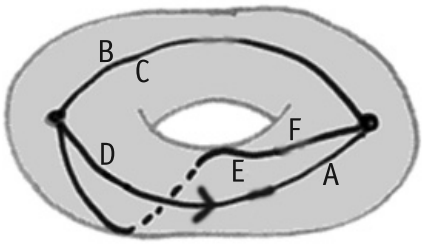
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

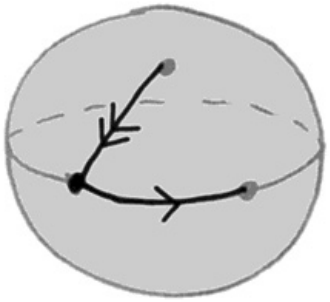
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

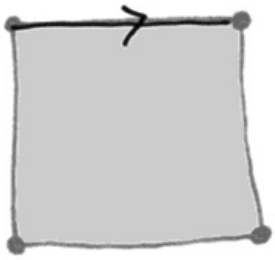
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

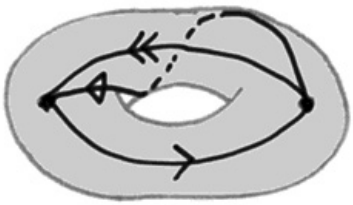
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





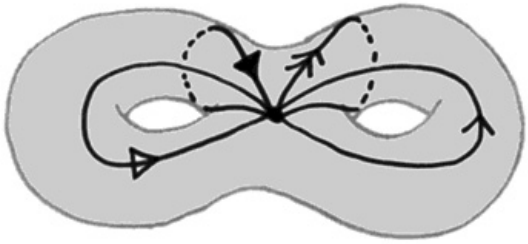
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

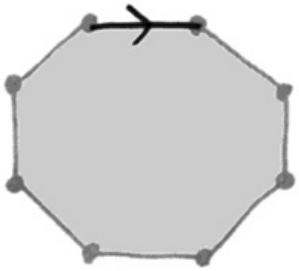
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

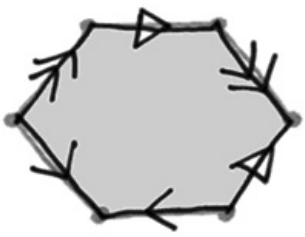
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



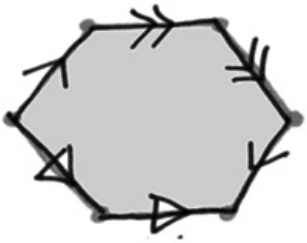


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

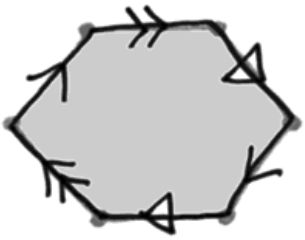
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



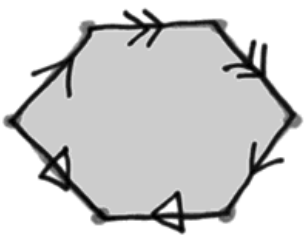
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



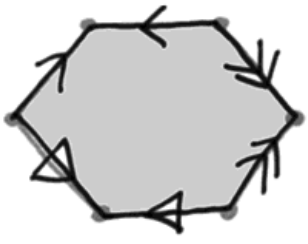
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



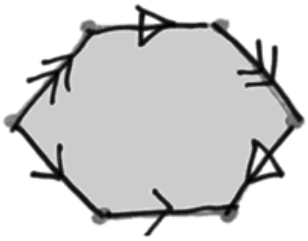
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



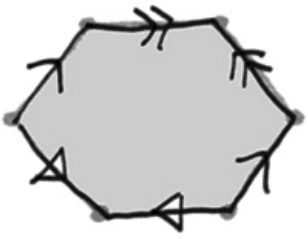
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



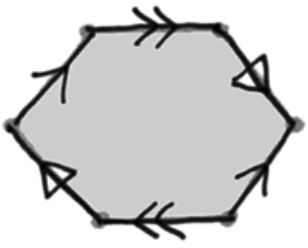
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam BJ

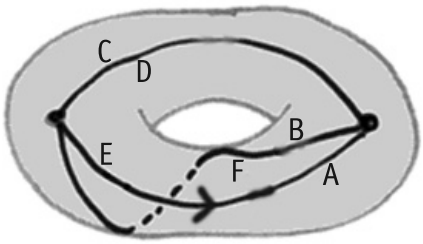
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

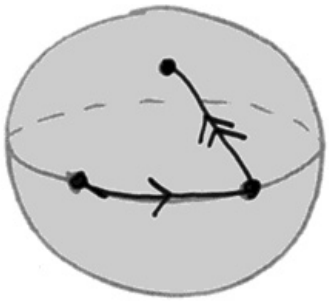
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

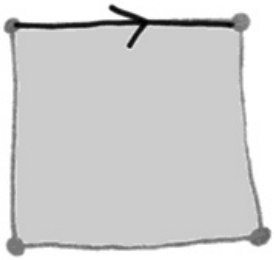
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

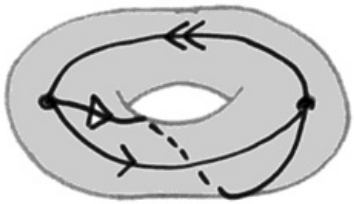
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





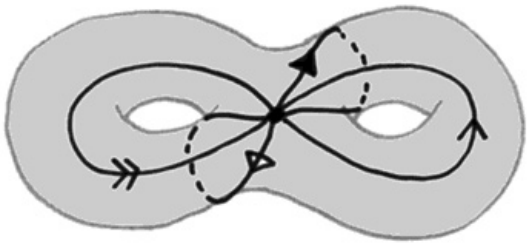
$+ v =$
$- e =$
$+ f =$
$\chi =$

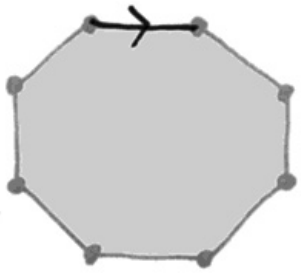
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

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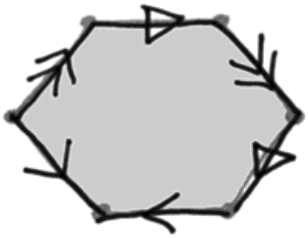
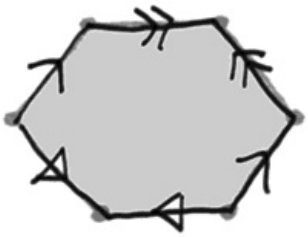
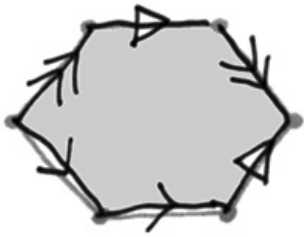


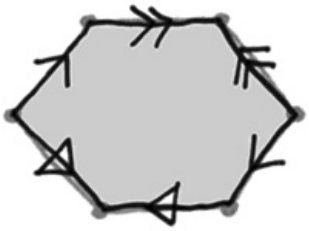
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



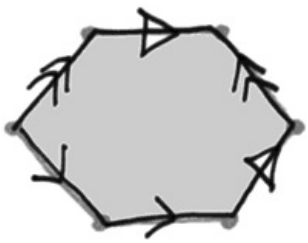
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



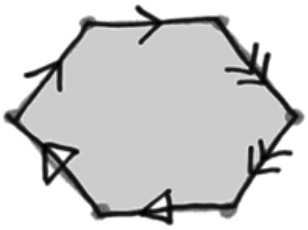
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



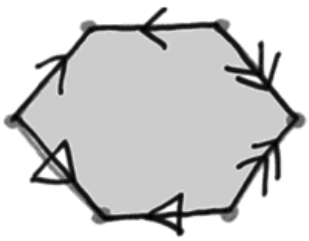
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



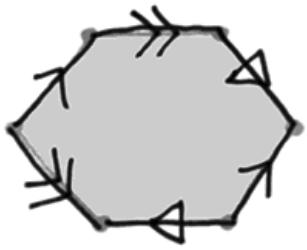
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam BK

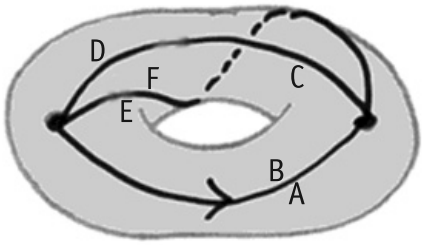
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

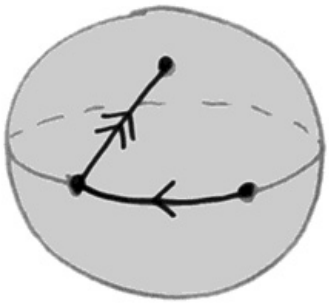
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

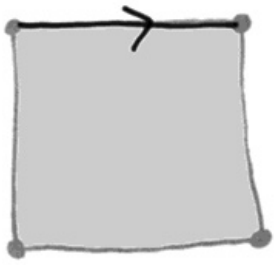
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



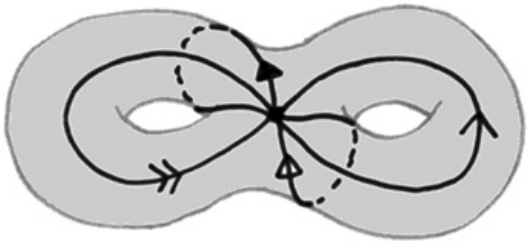


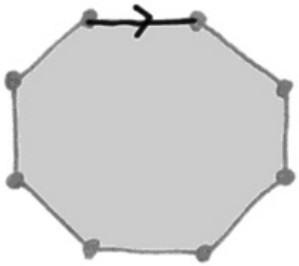
$+ v =$
$- e =$
$+ f =$
$\chi =$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.

$+ v =$
$- e =$
$+ f =$
$\chi =$

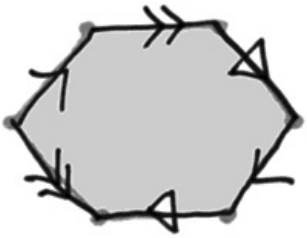
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



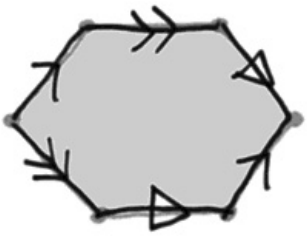


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

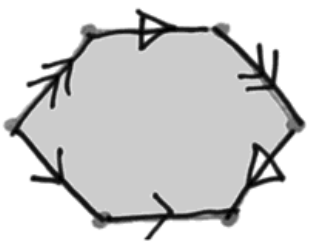
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



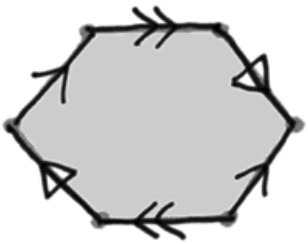
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



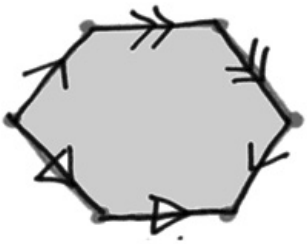
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



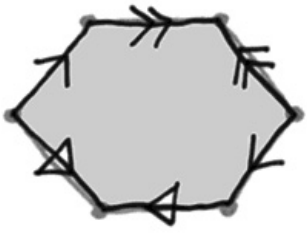
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



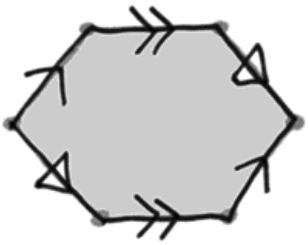
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



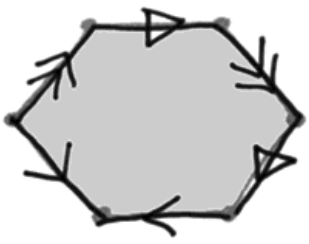
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam BL

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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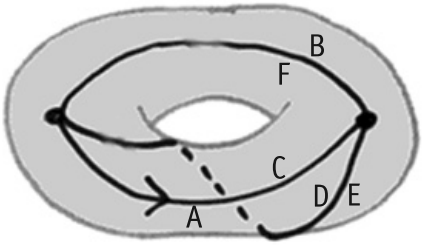
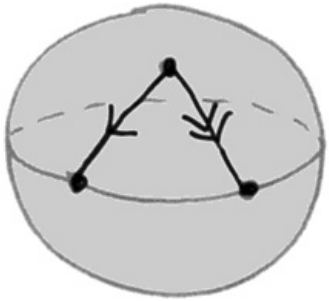
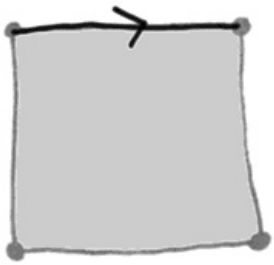
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

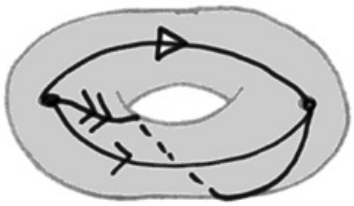
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





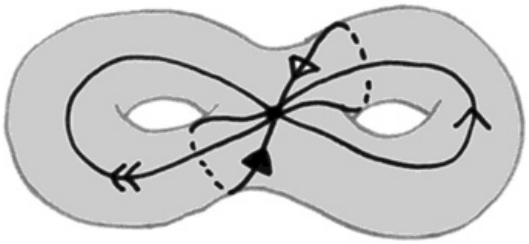
$+ v =$
$- e =$
$+ f =$
$\chi =$

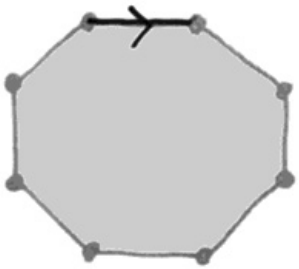
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

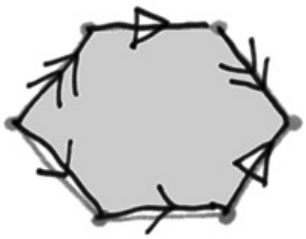
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



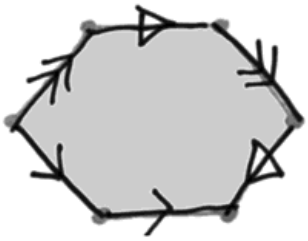


$+ v =$
$- e =$
$+ f =$
$\chi =$

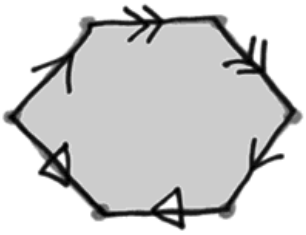
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



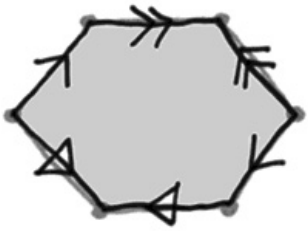
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



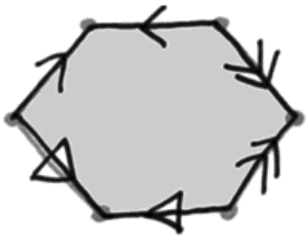
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



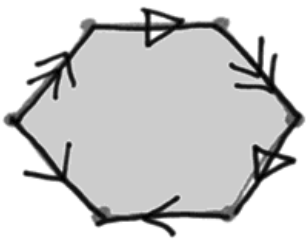
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



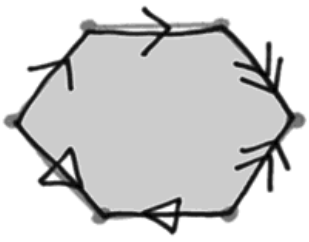
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



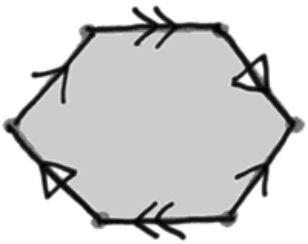
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BM

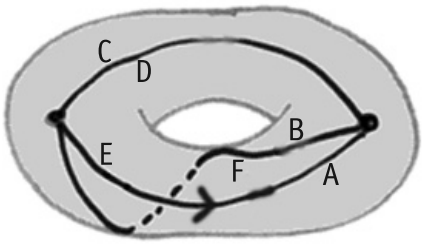
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

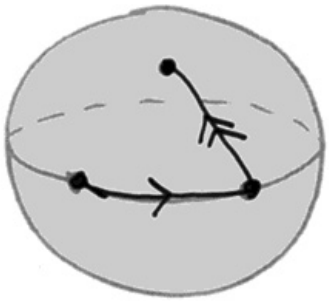
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

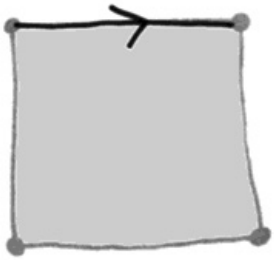
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
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$+ f =$
$\chi =$

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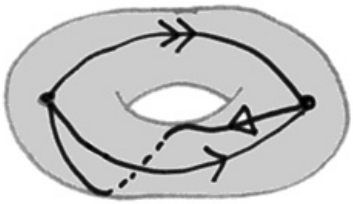

$+ v =$
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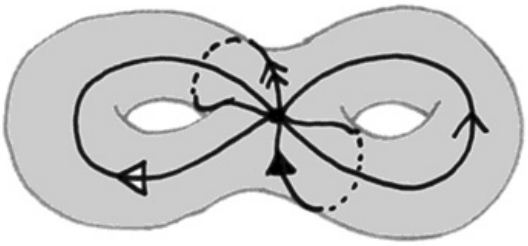

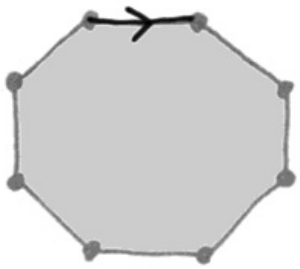

$+ v =$
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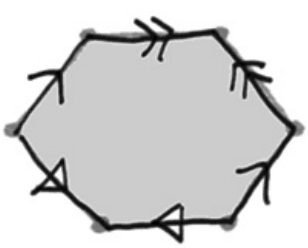
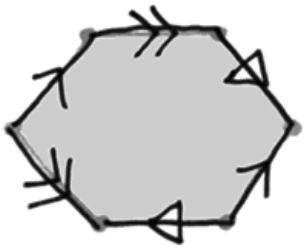
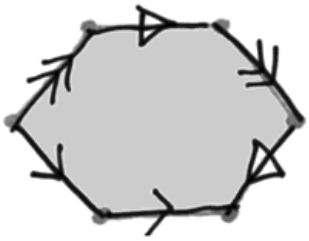


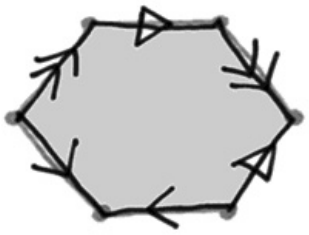
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



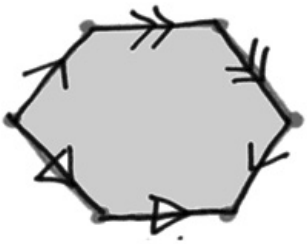
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
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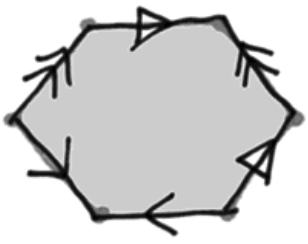

$+ v =$
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$+ f =$
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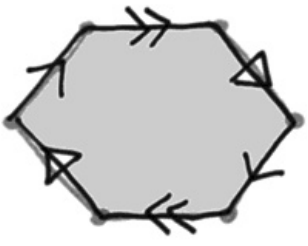
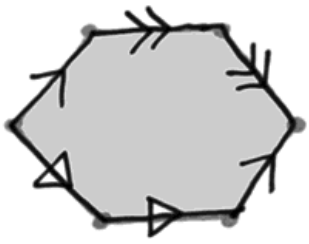


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam BN

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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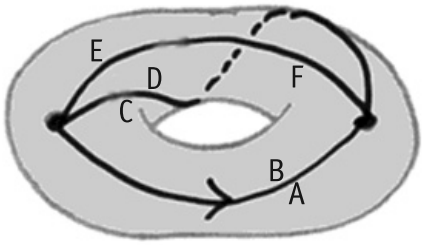
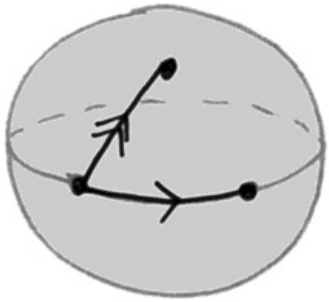
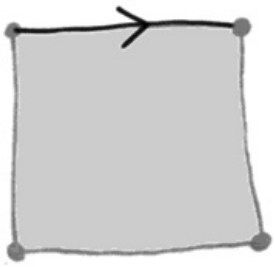
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

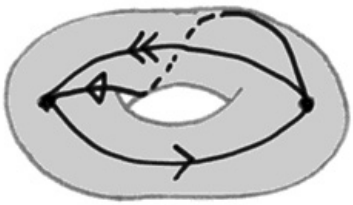
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



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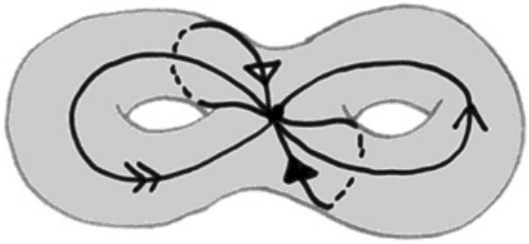

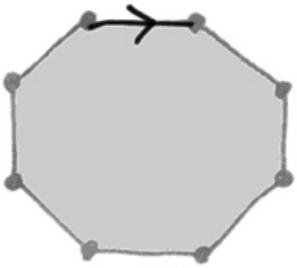

$+ v =$
$- e =$
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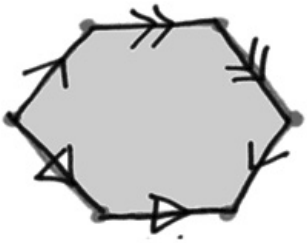
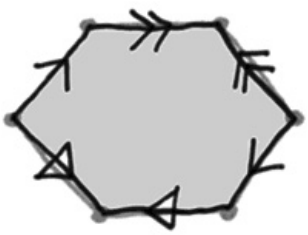
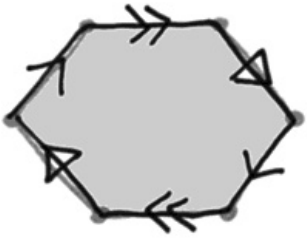


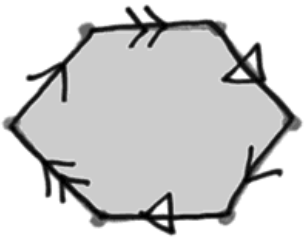
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



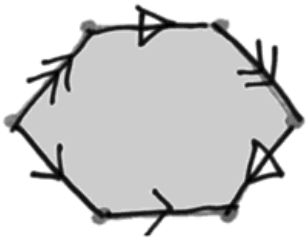
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
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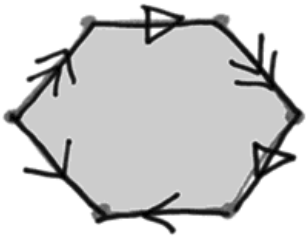

$+ v =$
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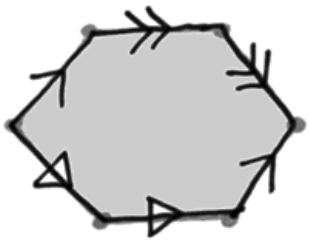
$\chi =$
yes / no



$+ v =$
$- e =$
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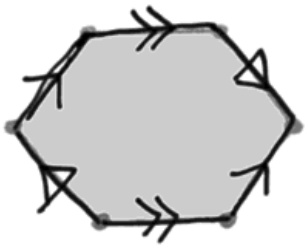
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CA

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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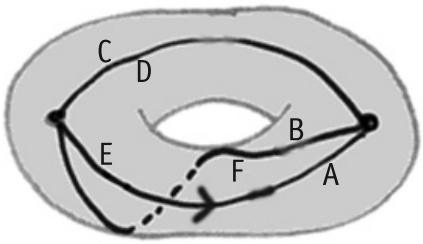

A						**A**

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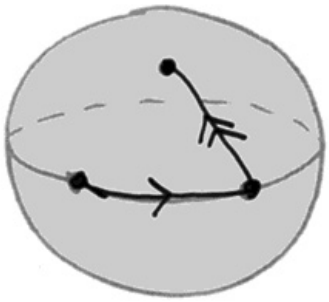

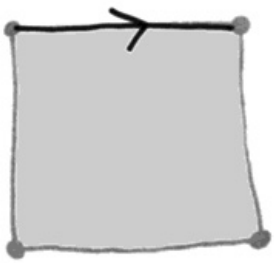

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$- e =$
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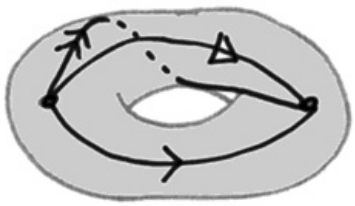
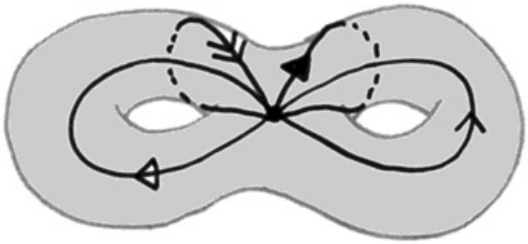
$\chi =$

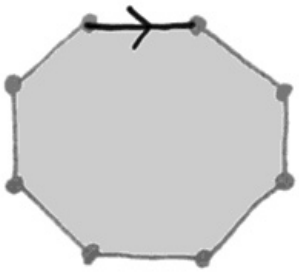
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

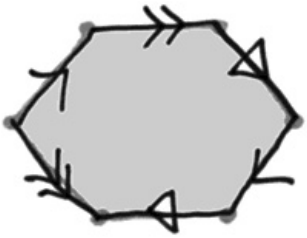
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



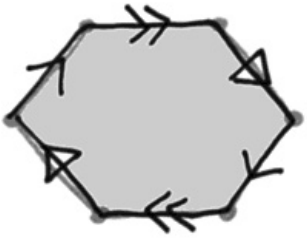


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

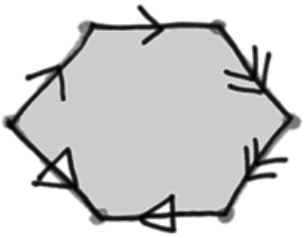
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



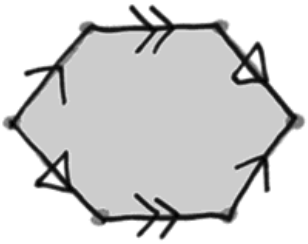
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



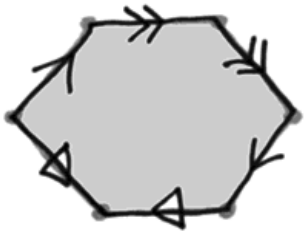
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



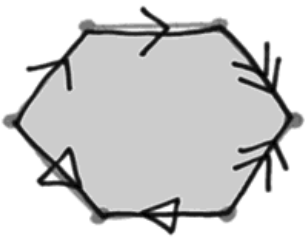
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



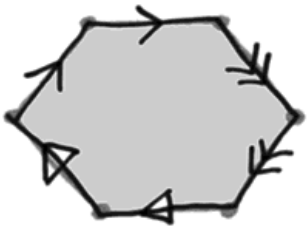
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



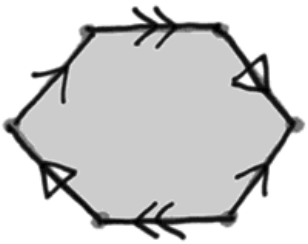
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam CB

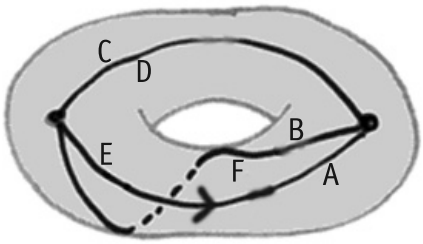
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

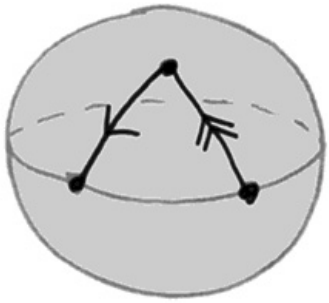
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

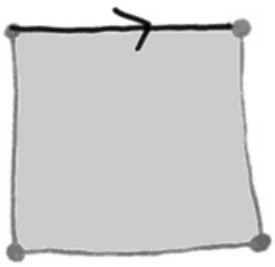
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

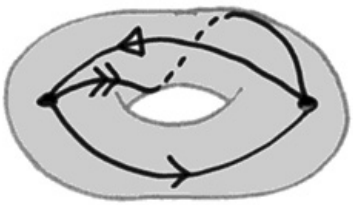
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





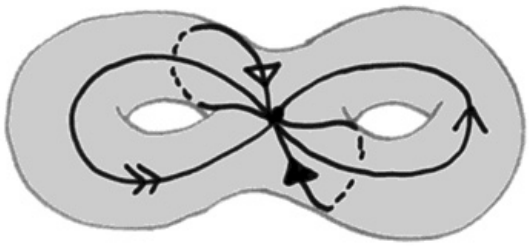
$+ v =$
$- e =$
$+ f =$
$\chi =$

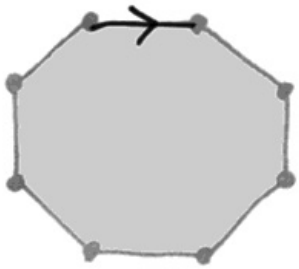
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

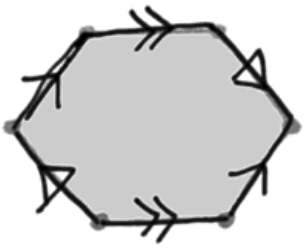
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



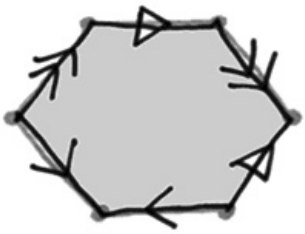


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

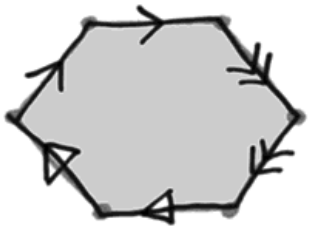
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



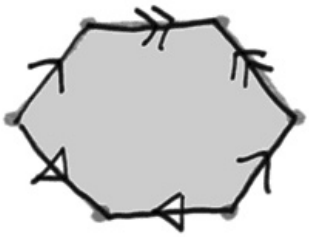
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



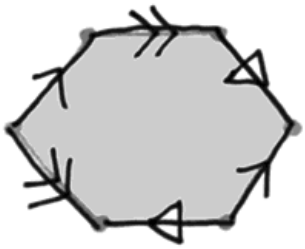
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



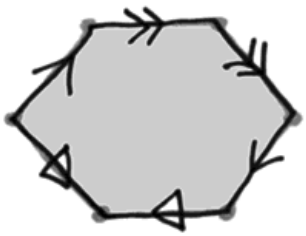
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



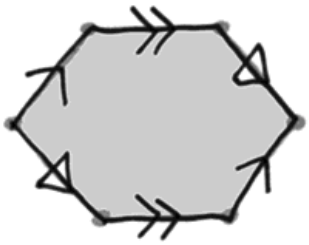
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



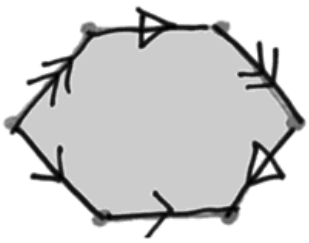
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam CC

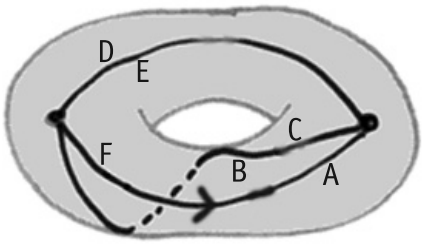
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

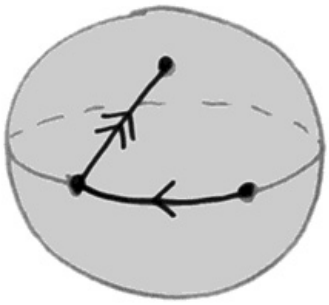
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

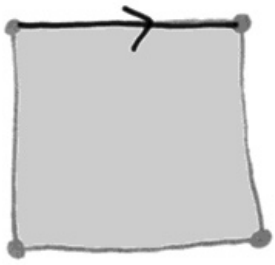
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

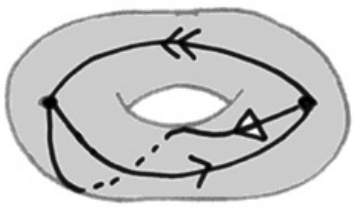
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





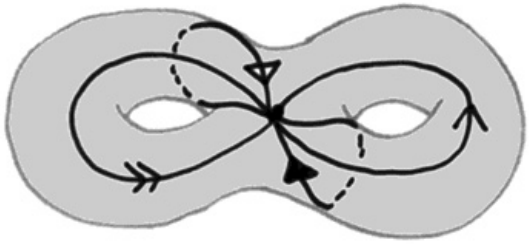
$+ v =$
$- e =$
$+ f =$
$\chi =$

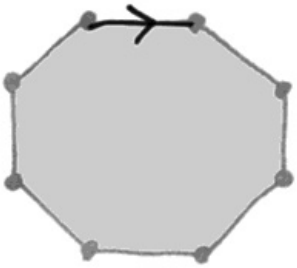
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

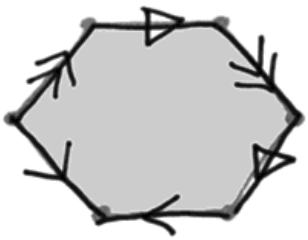
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



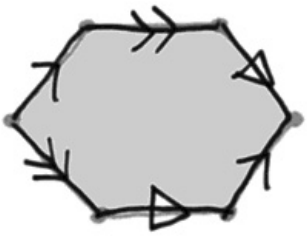


$+ v =$
$- e =$
$+ f =$
$\chi =$

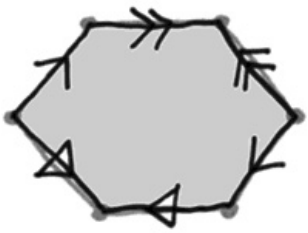
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



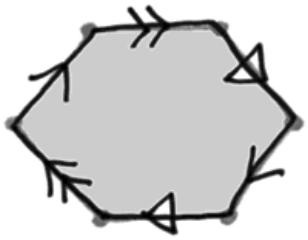
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



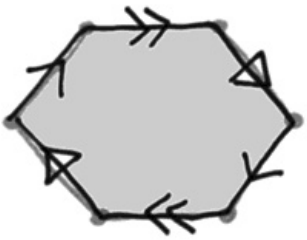
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



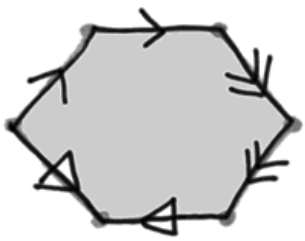
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



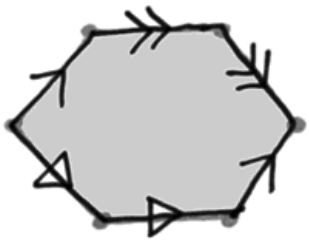
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



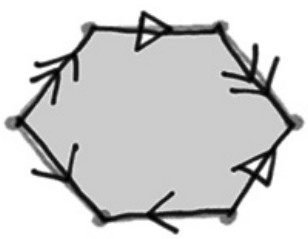
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CD

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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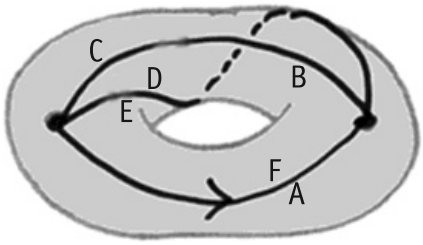
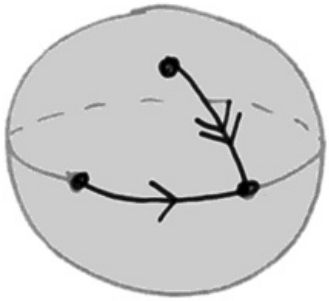
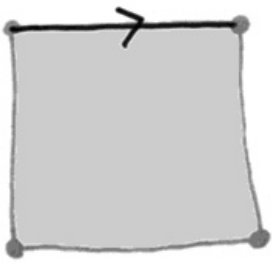


A						**A**

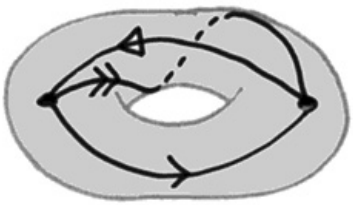
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





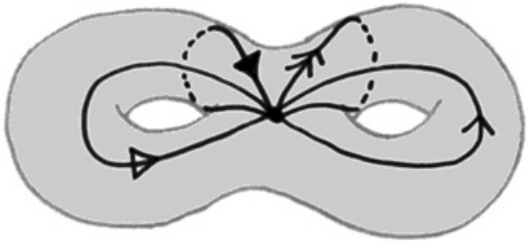
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

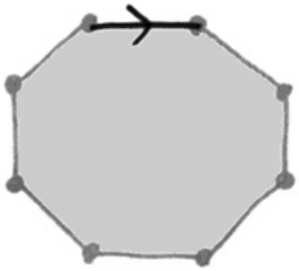
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

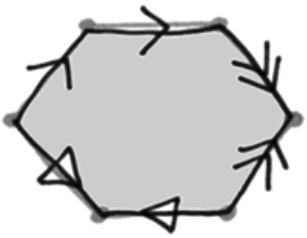
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



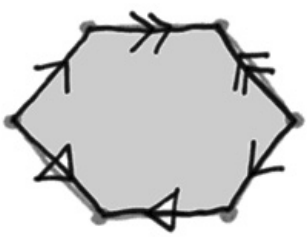


$+ v =$
$- e =$
$+ f =$
$\chi =$

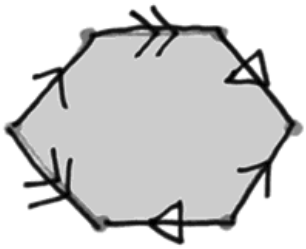
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



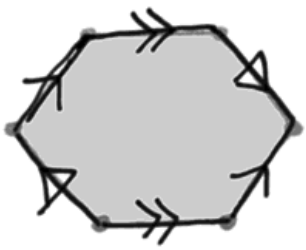
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



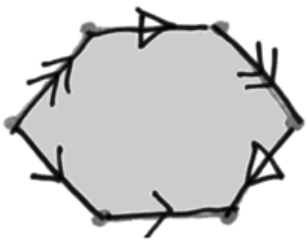
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



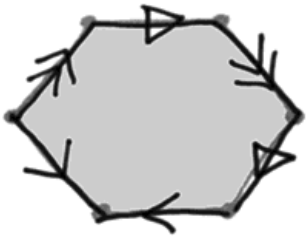
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



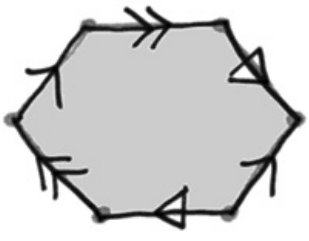
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



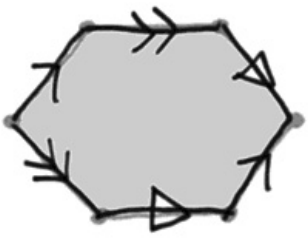
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CE

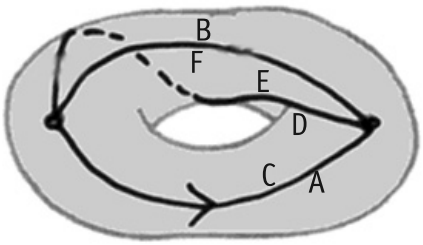
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

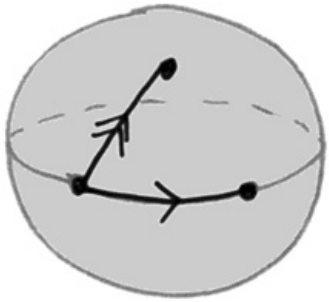
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

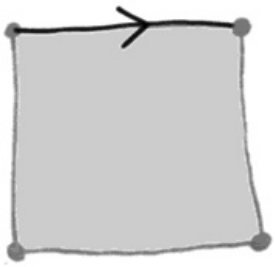
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

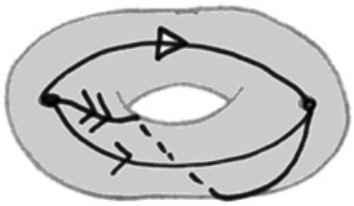
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
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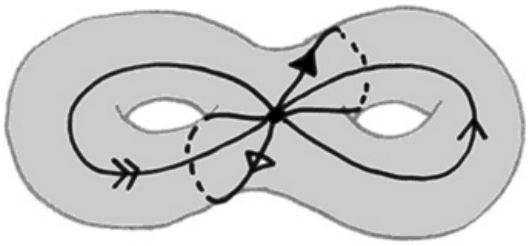
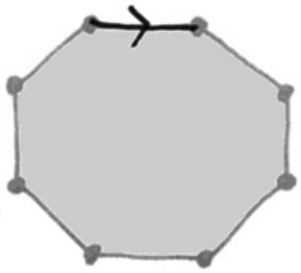
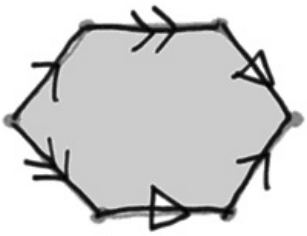
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



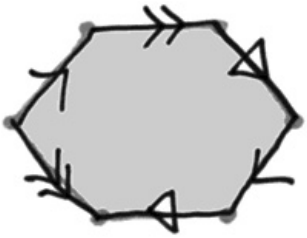


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

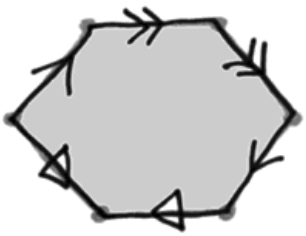
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



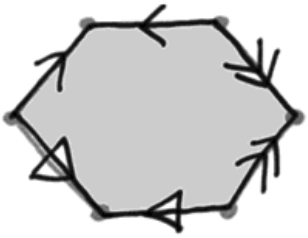
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



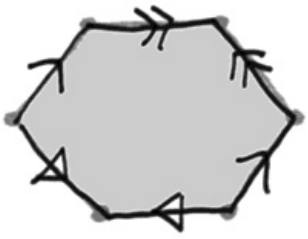
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



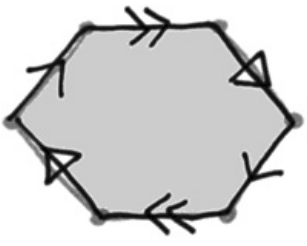
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



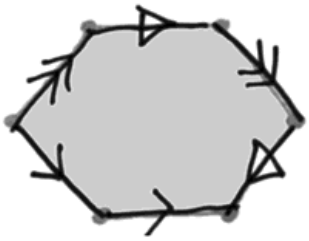
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



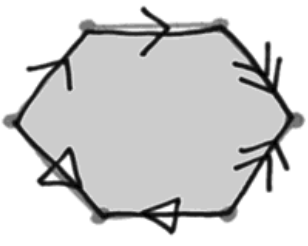
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam CF

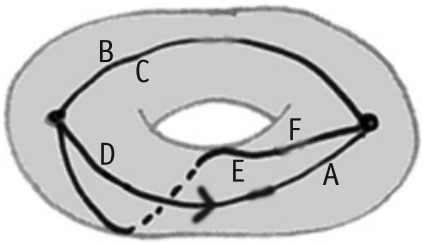
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

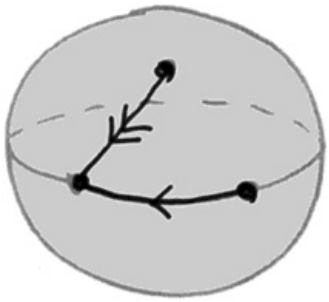
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

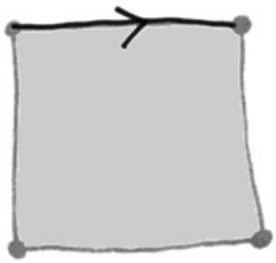
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

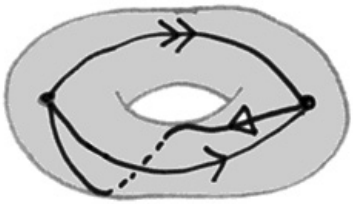
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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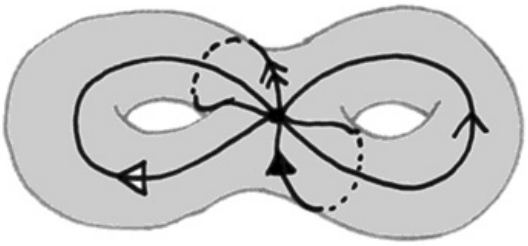

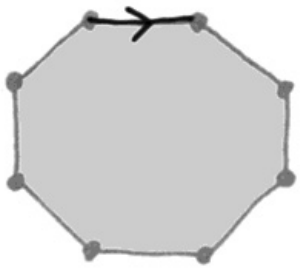

$+ v =$
$- e =$
$+ f =$
$\chi =$

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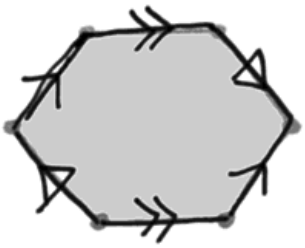
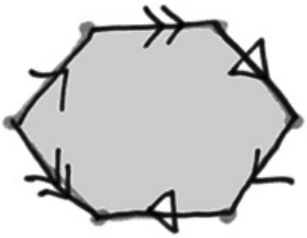
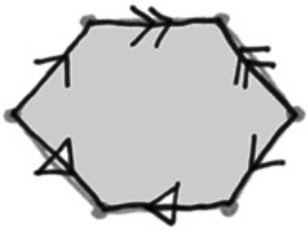


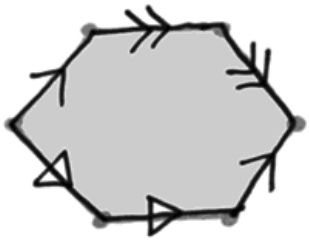
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



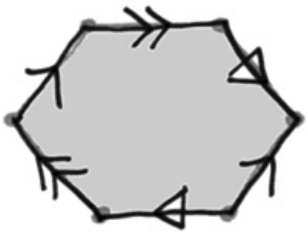
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



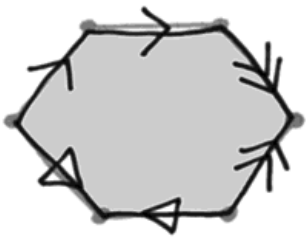
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



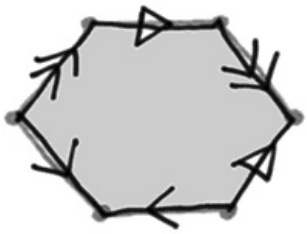
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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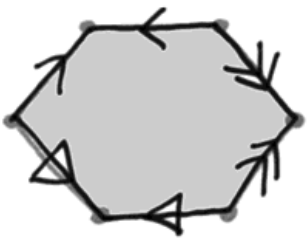
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CG

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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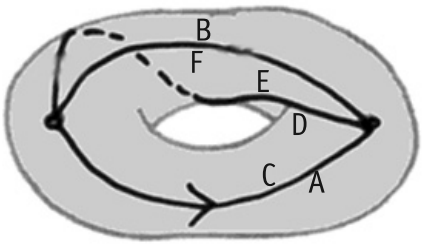
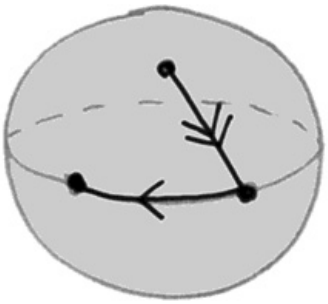
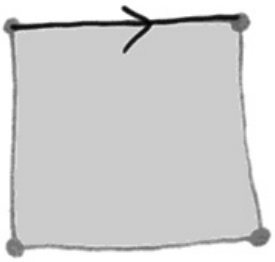


A						**A**

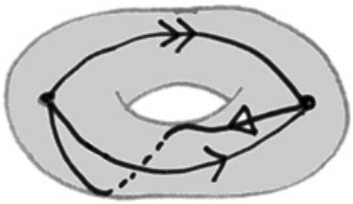
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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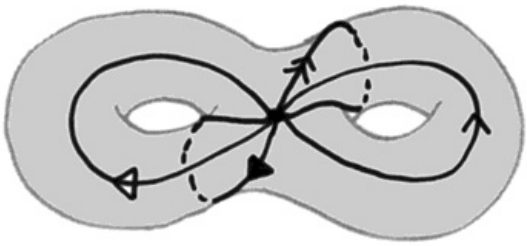
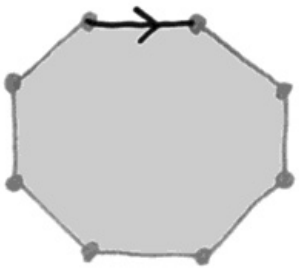
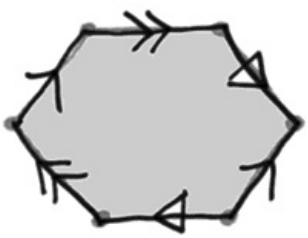


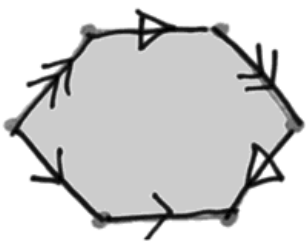


$+ v =$
$- e =$
$+ f =$
$\chi =$

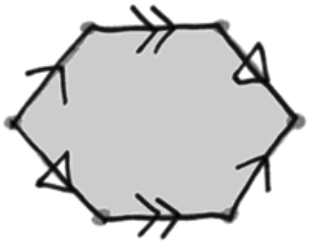
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



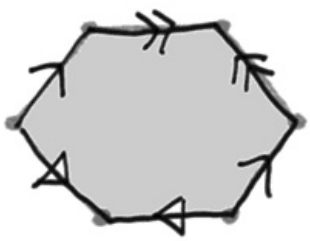
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



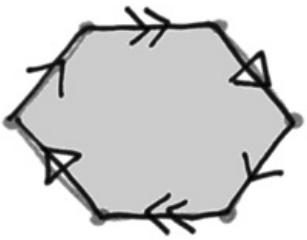
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



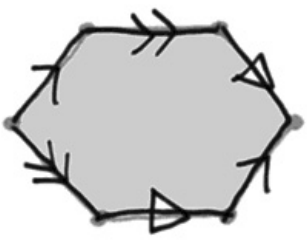
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



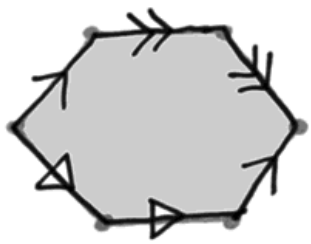
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



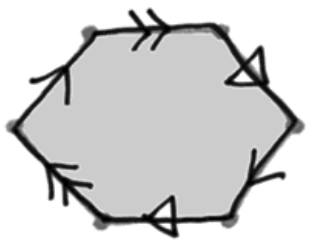
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CH

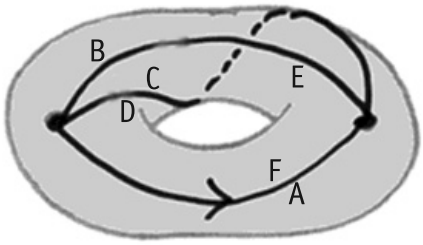
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

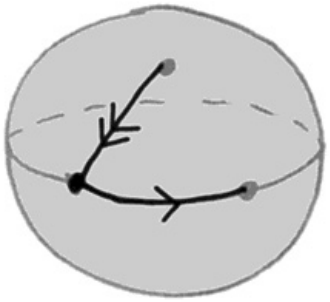
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

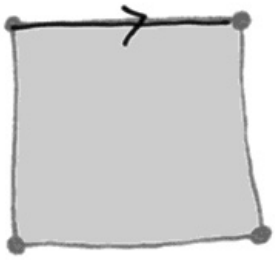
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
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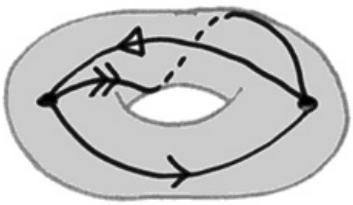

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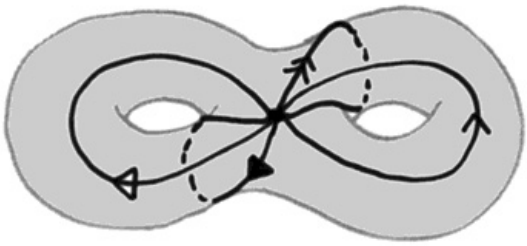

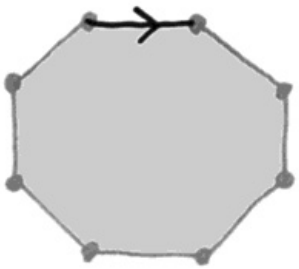

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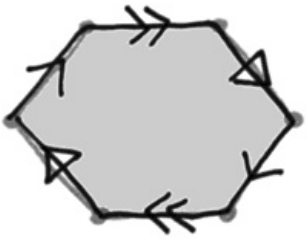
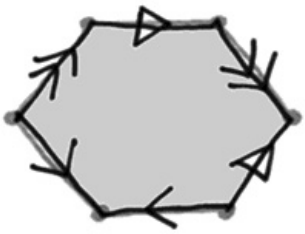
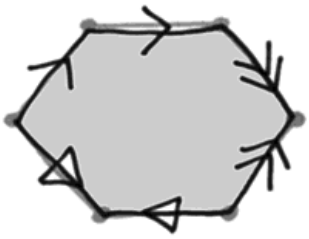


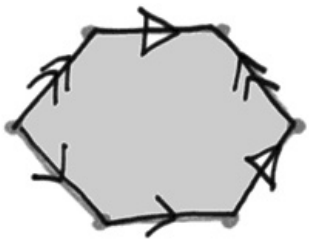
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



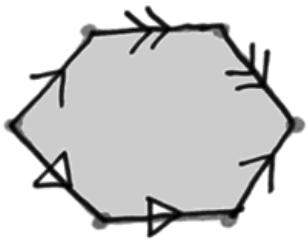
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



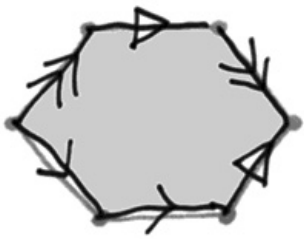
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



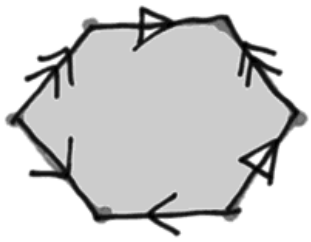
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



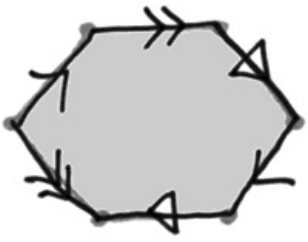
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CI

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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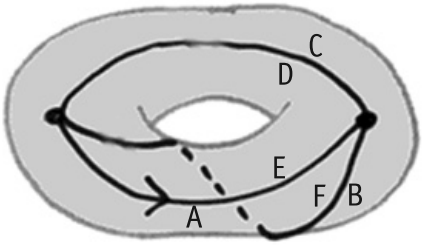

A						**A**

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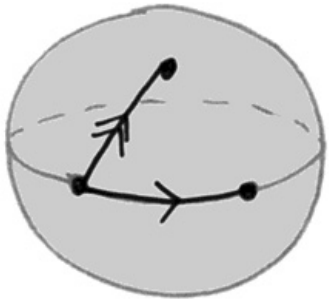
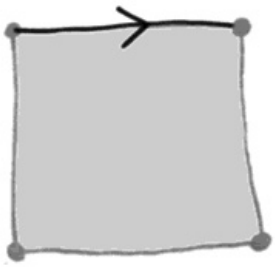
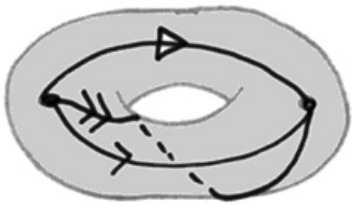




$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



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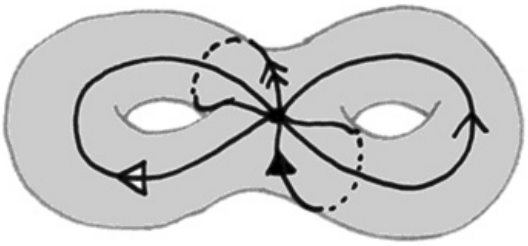

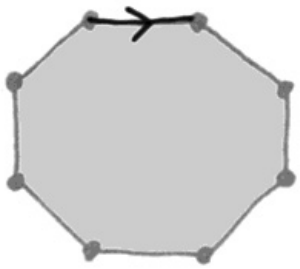

$+ v =$
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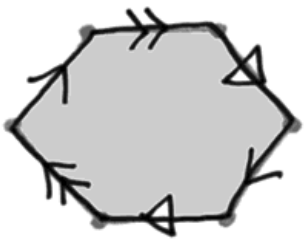
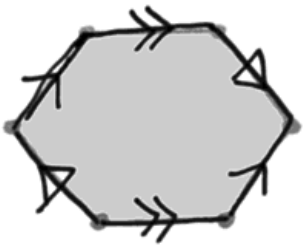


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
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$\chi =$
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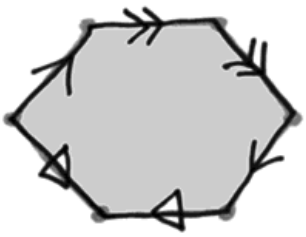

$+ v =$
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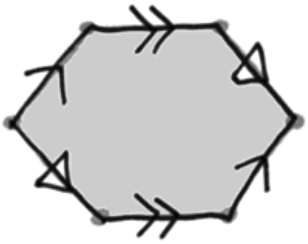
$\chi =$
yes / no



$+ v =$
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$\chi =$
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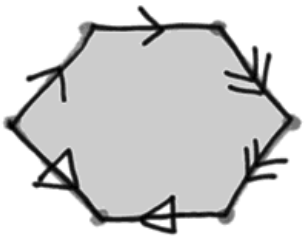

$+ v =$
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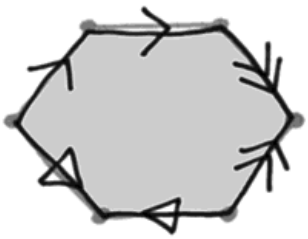

$+ v =$
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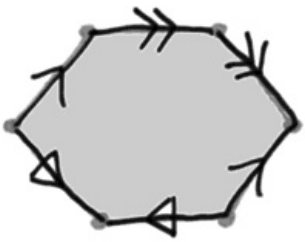
$\chi =$
yes / no



$+ v =$
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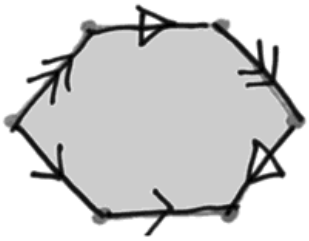

$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CJ

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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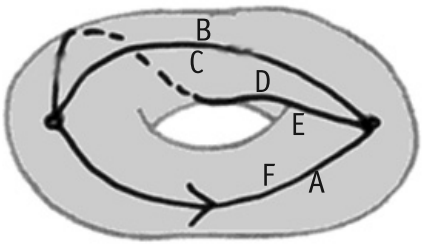

A						**A**

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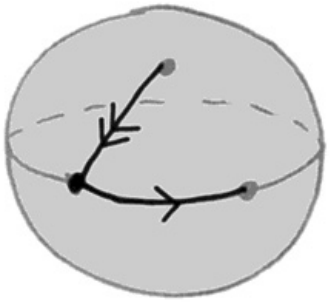

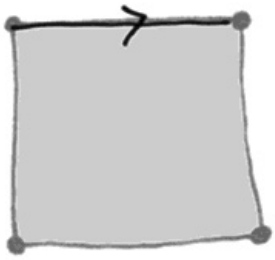

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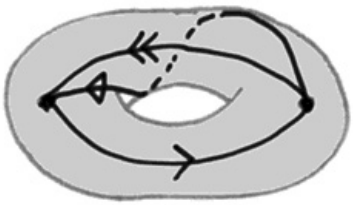

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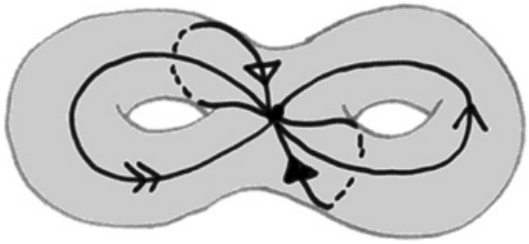

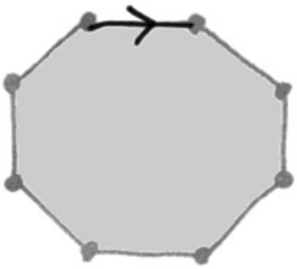

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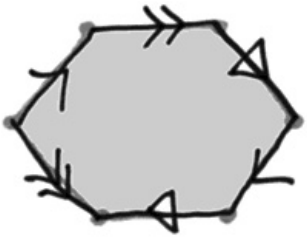

$+ v =$
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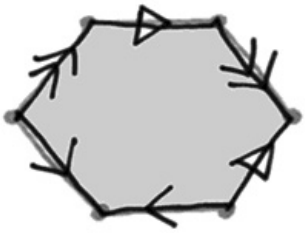
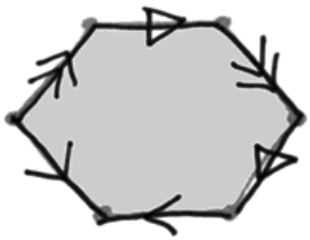
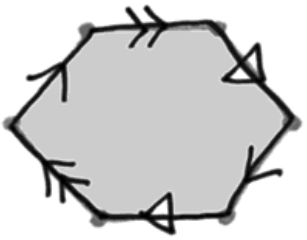
$\chi =$
yes / no



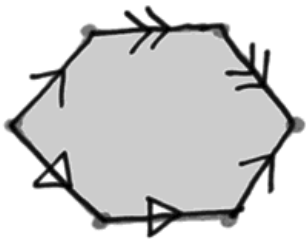
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



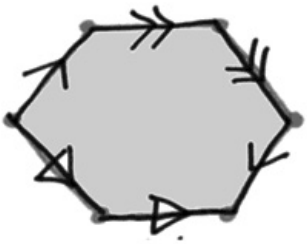
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



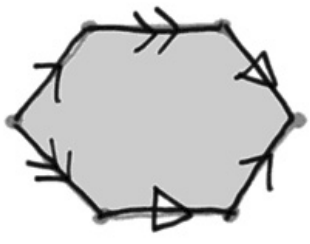
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CK

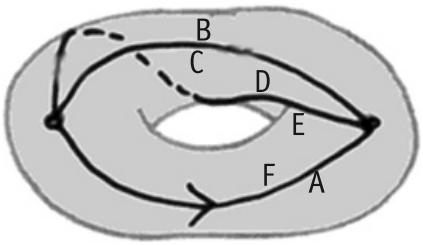
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

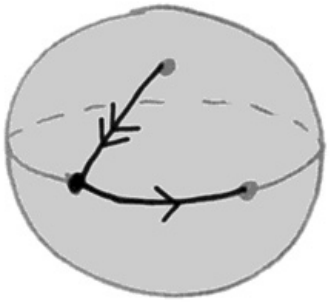
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

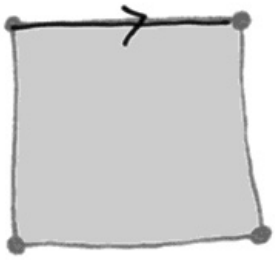
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

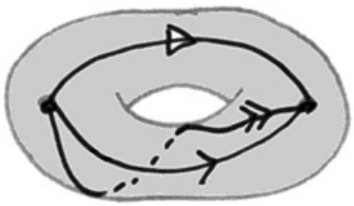
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





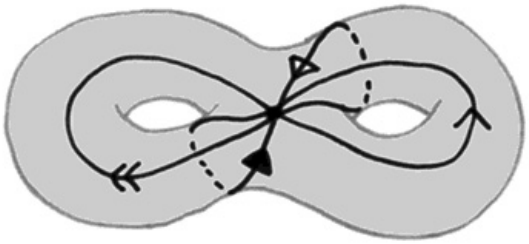
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

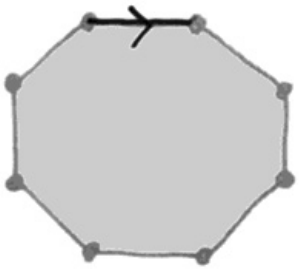
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

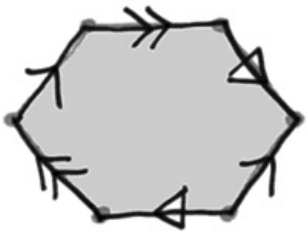
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



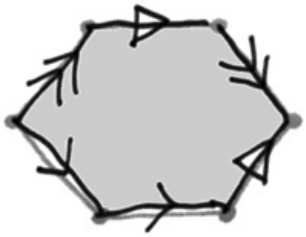


$+ v =$
$- e =$
$+ f =$
$\chi =$

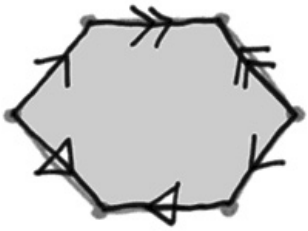
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



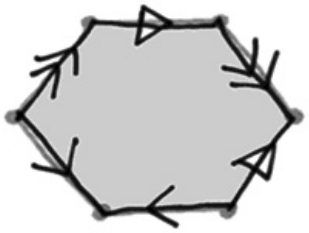
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



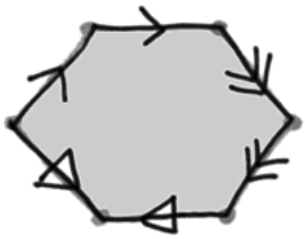
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



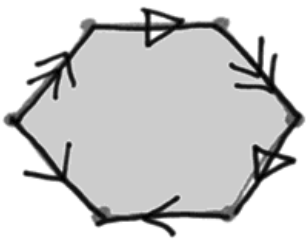
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



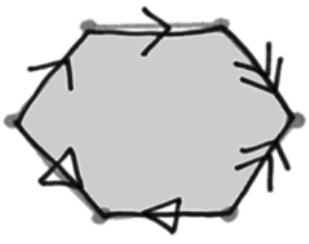
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



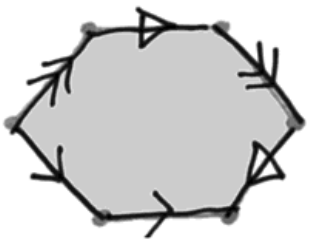
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CL

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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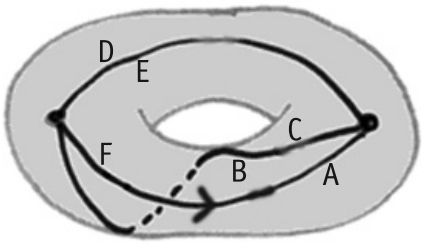
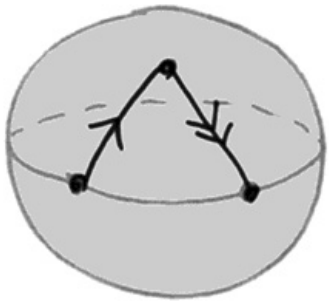
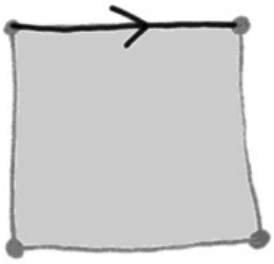
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

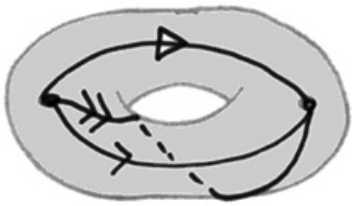
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
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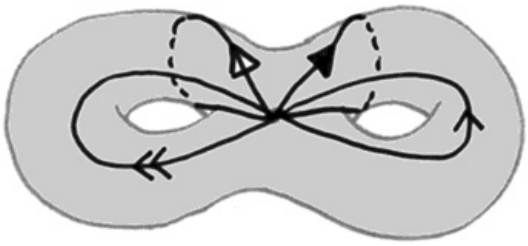
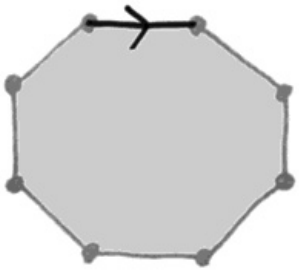
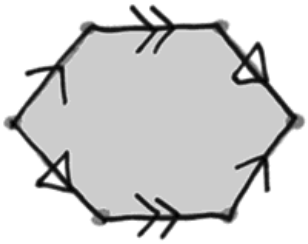
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



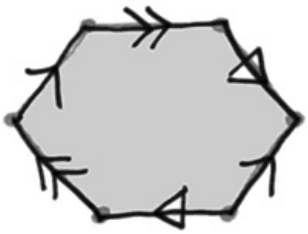


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

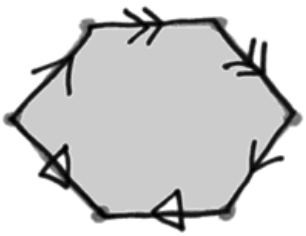
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



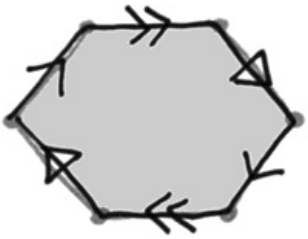
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



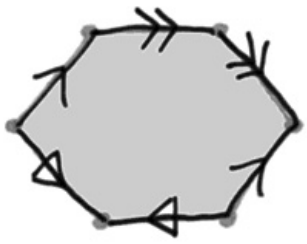
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
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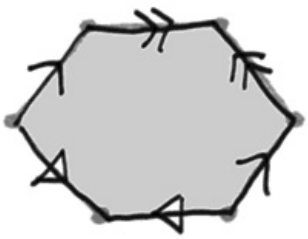
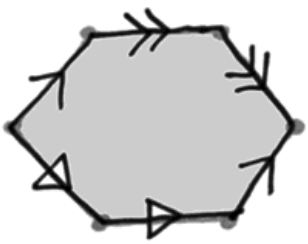
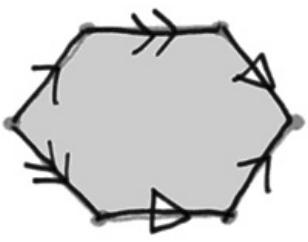
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam CM

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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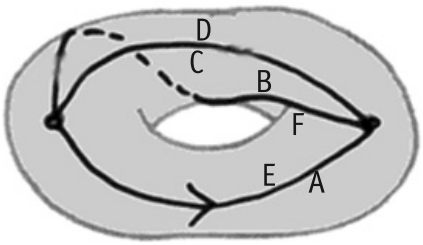
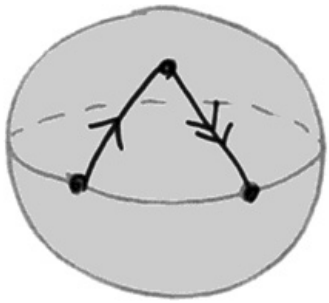
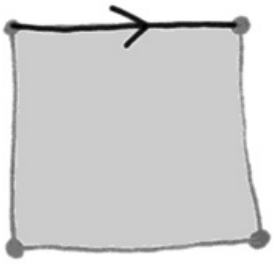


A						**A**

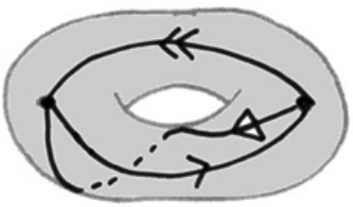
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





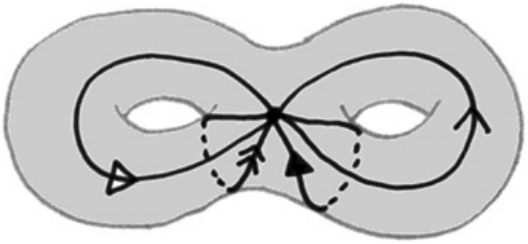
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

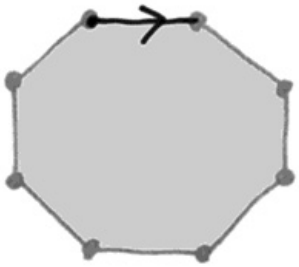
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

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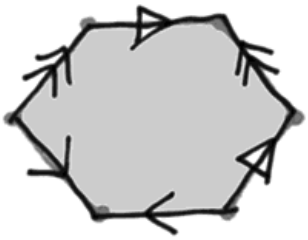
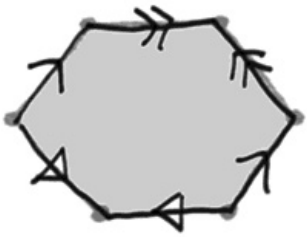
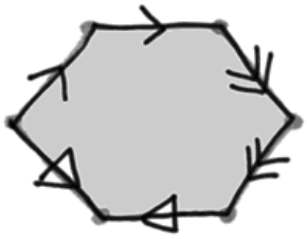


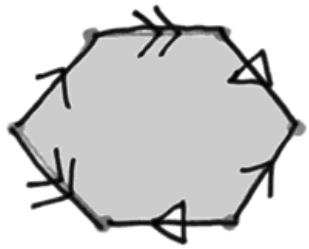
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



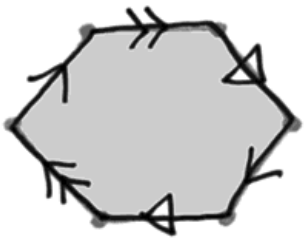
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



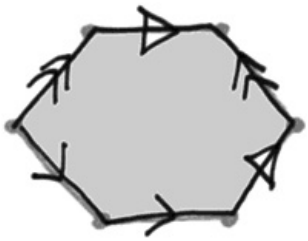
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



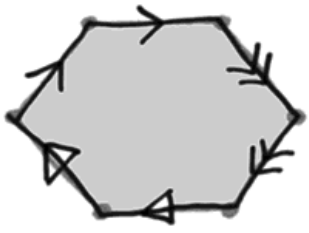
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



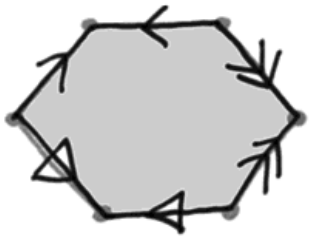
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam CN

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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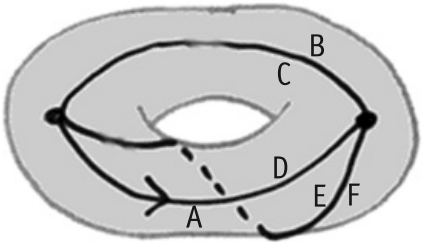
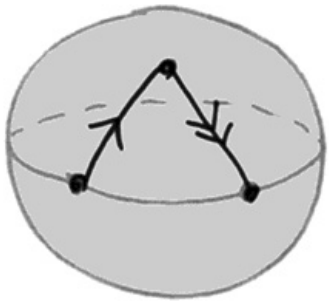
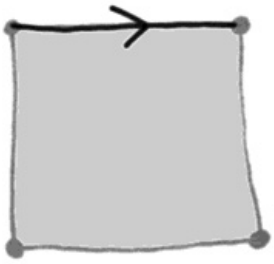


A						**A**

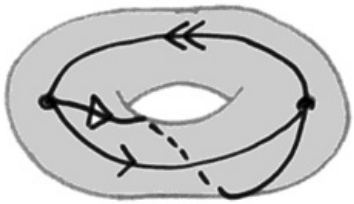
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





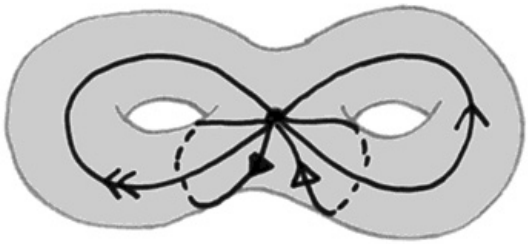
$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

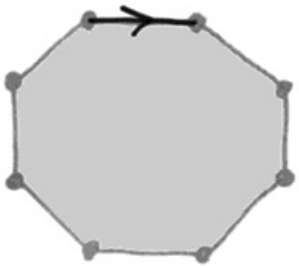
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

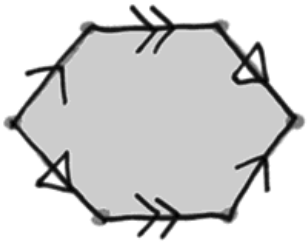
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



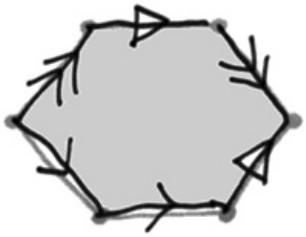


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

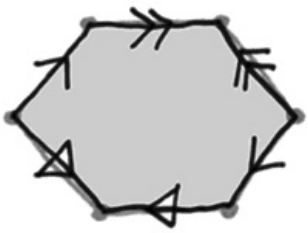
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



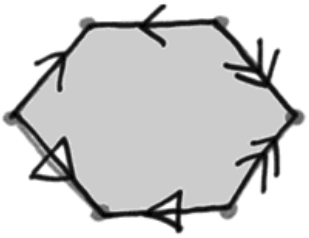
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



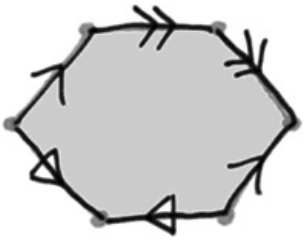
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



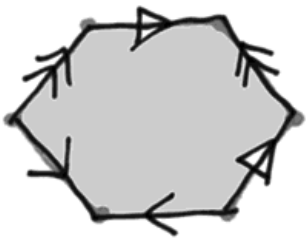
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



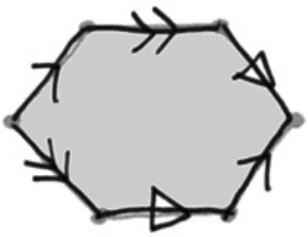
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



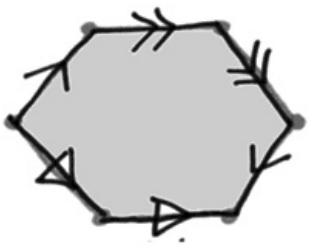
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam DA

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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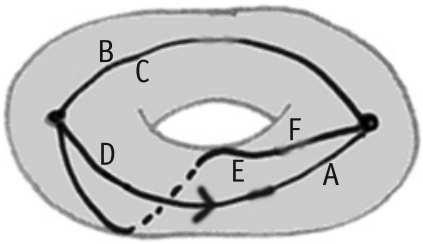
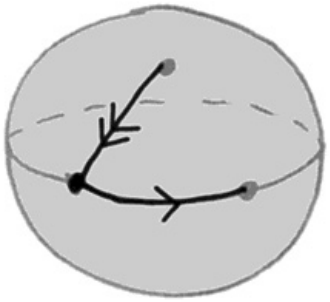
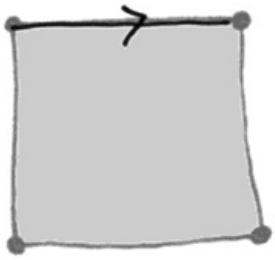


A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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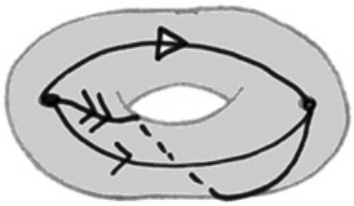

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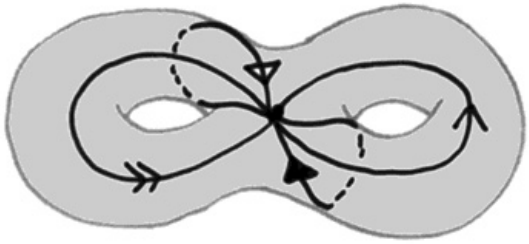

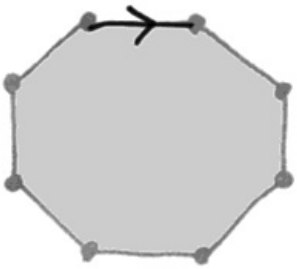

$+ v =$
$- e =$
$+ f =$
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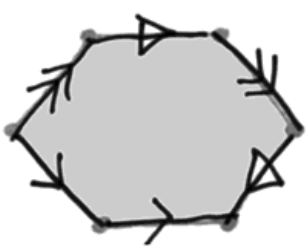
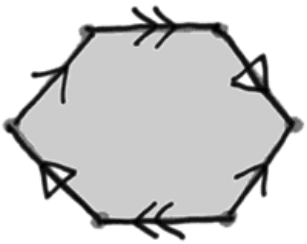
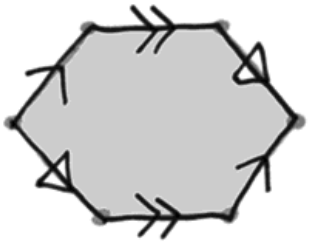


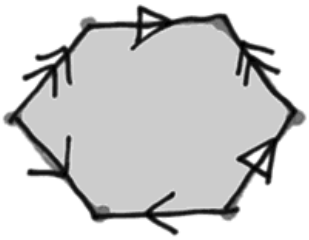
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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$+ f =$
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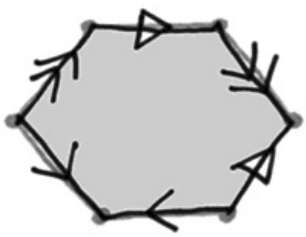
yes / no



$+ v =$
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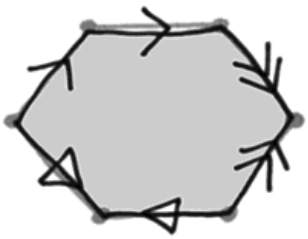
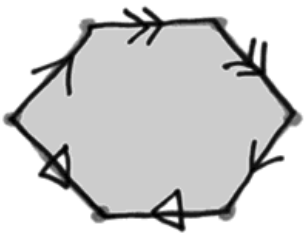
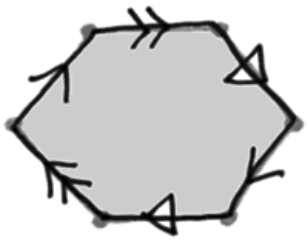
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam DB

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

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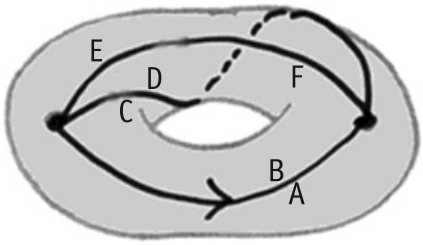

A						**A**

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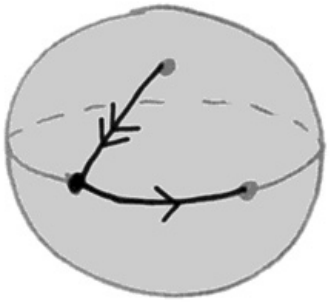

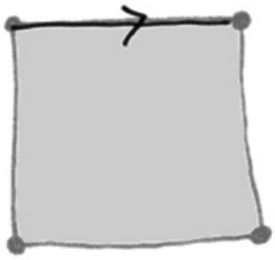

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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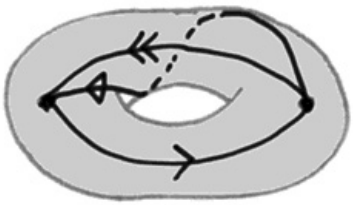

$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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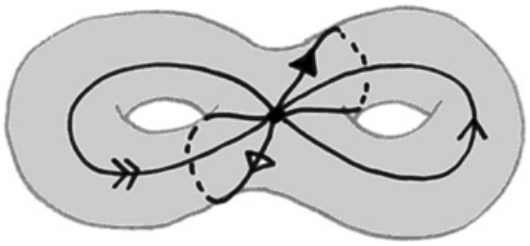

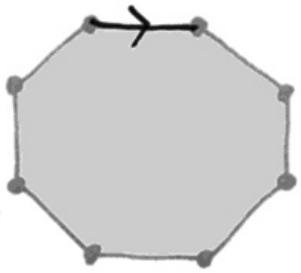

$+ v =$
$- e =$
$+ f =$
$\chi =$

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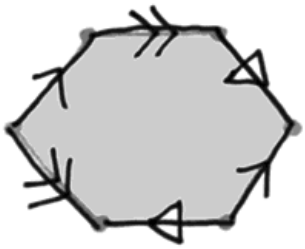
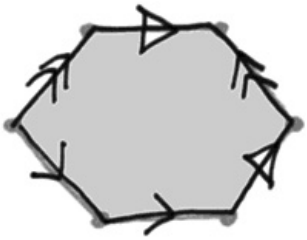


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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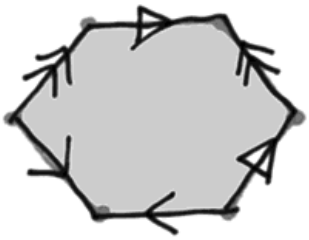
$+ f =$
$\chi =$
yes / no



$+ v =$
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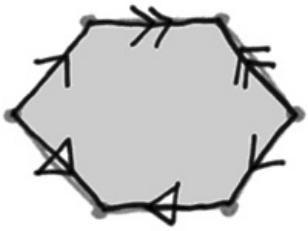

$+ v =$
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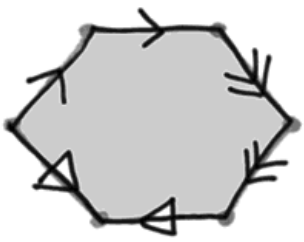
$+ f =$
$\chi =$
yes / no



$+ v =$
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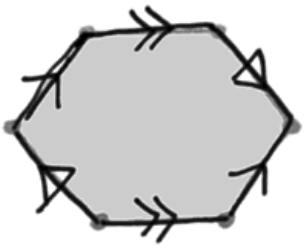
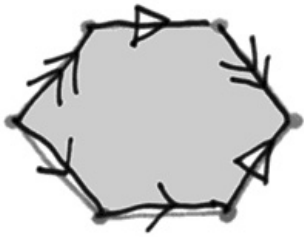
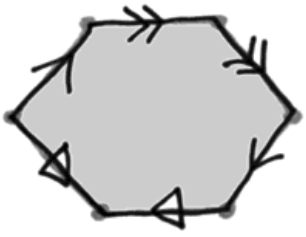
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam DC

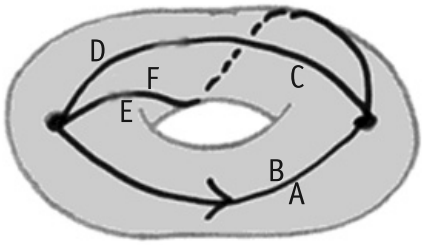
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

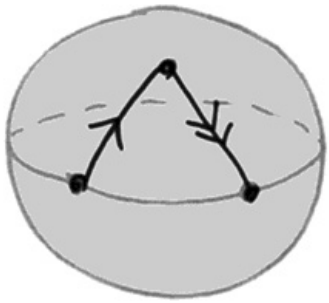
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

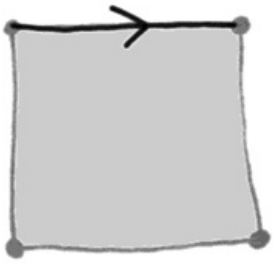
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

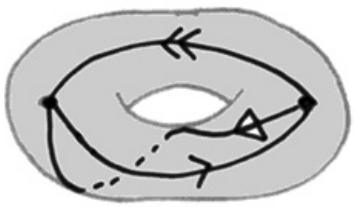
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





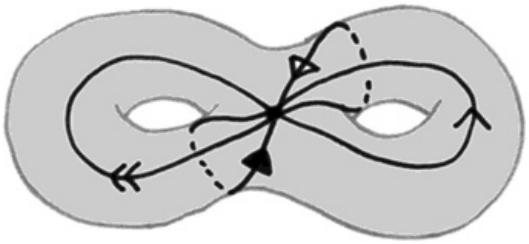
$+ v =$
$- e =$
$+ f =$
$\chi =$

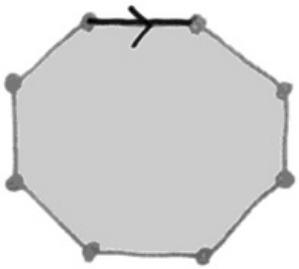
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

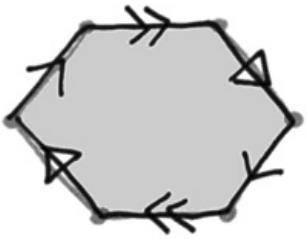
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



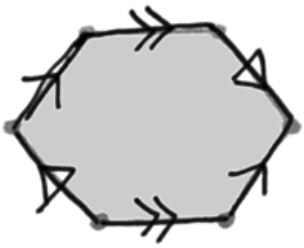


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

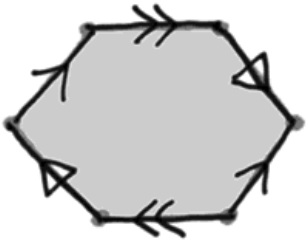
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



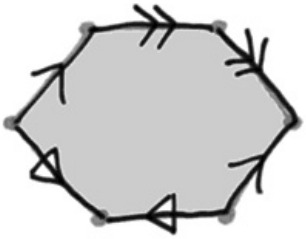
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



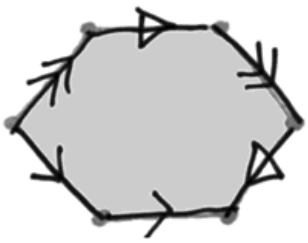
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



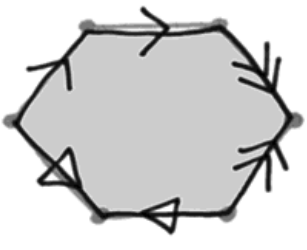
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



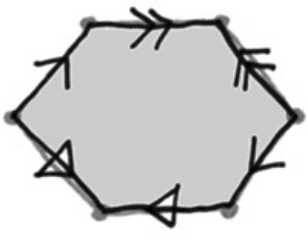
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



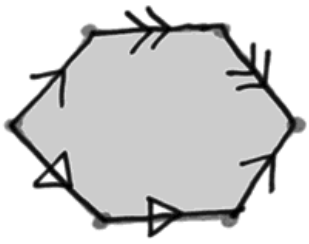
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam DD

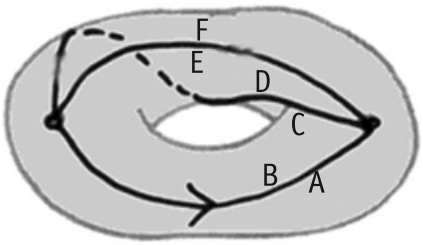
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

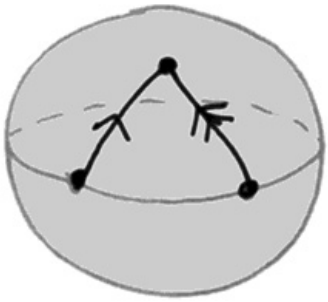
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

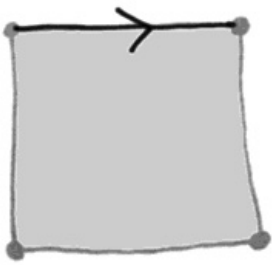
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

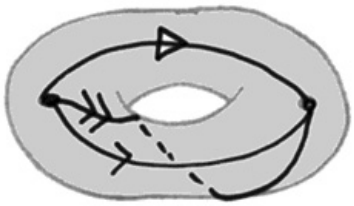
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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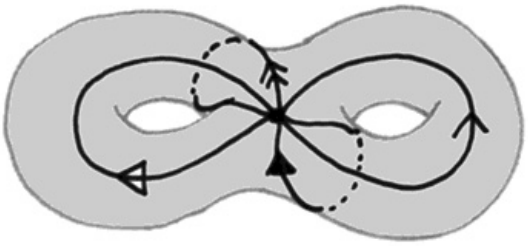
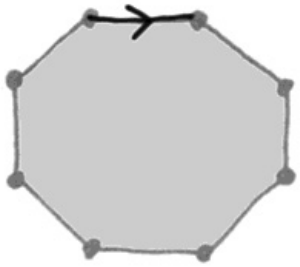
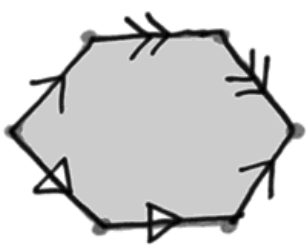


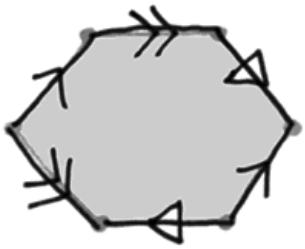


$+ v =$
$- e =$
$+ f =$
$\chi =$

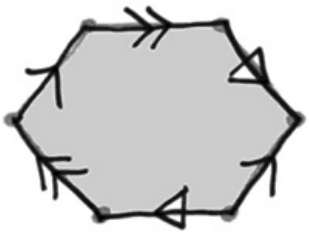
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



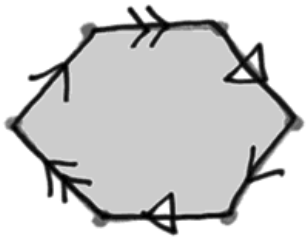
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



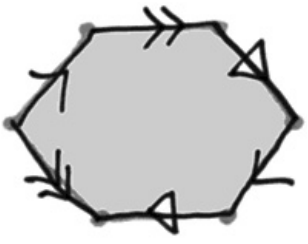
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



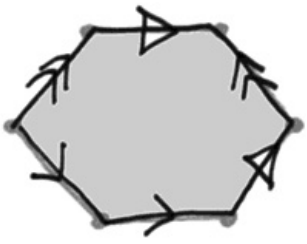
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



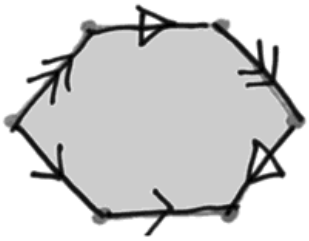
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



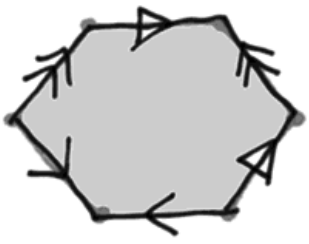
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam DE

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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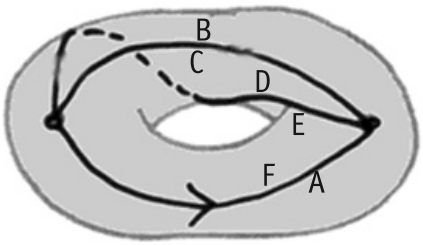

A						**A**

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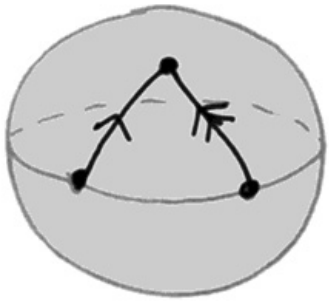
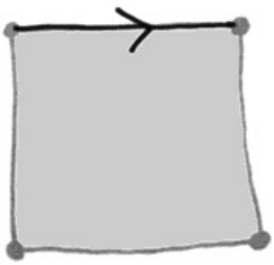
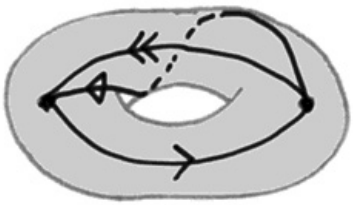




$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



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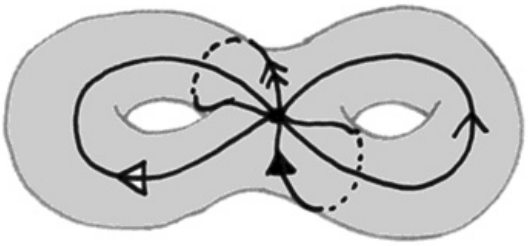

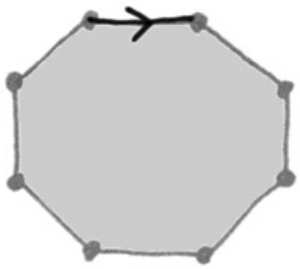

$+ v =$
$- e =$
$+ f =$
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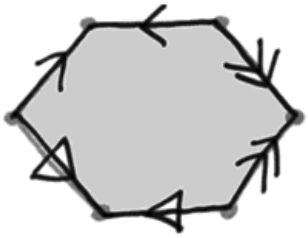
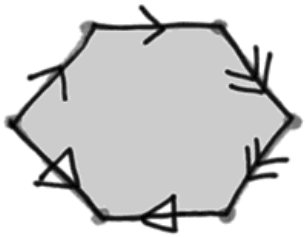


$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
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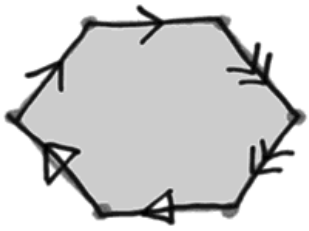
$\chi =$
yes / no



$+ v =$
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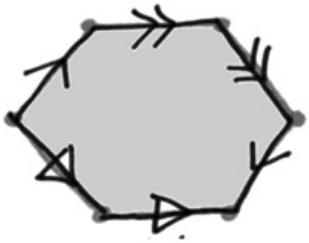
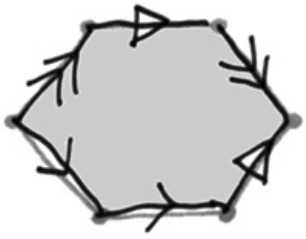
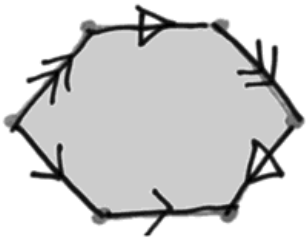


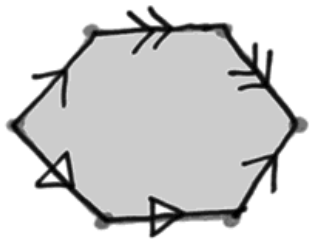
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



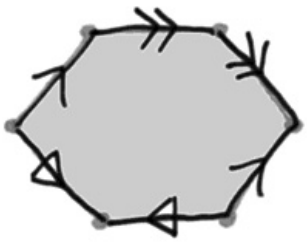
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no

Practice First Exam DF

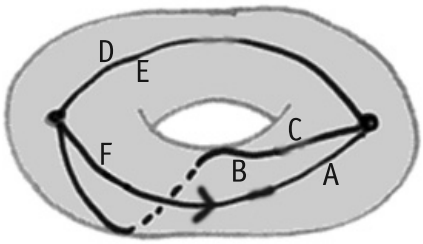
MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

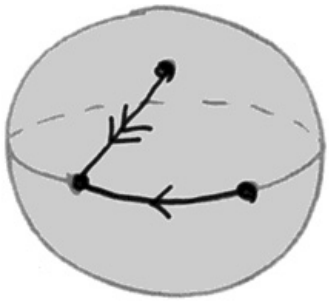
You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

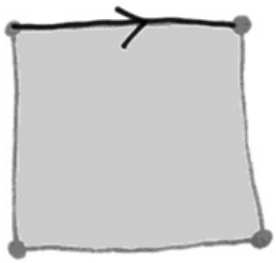
[1] Starting with the letter **A**, walk in the direction of the arrow along the cuts shown, until you return to the letter **A**. In what order do you encounter the letters **B**, **C**, **D**, **E**, and **F**?



A						**A**

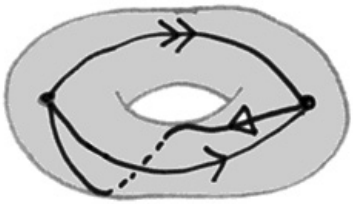
[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





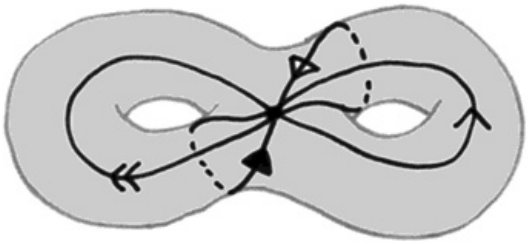
$+ v =$
$- e =$
$+ f =$
$\chi =$

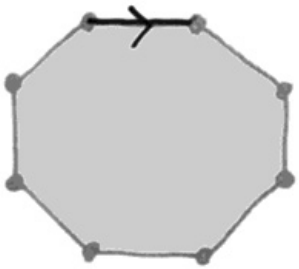
[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$+ v =$
$- e =$
$+ f =$
$\chi =$

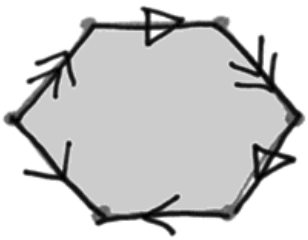
[4] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



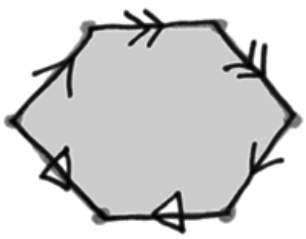


$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$

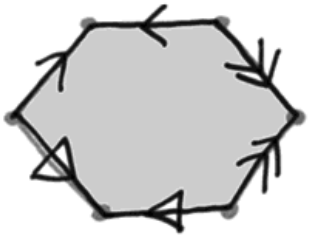
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



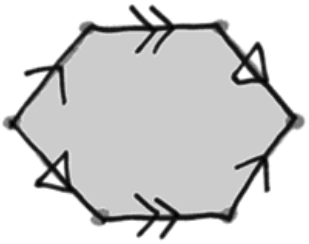
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



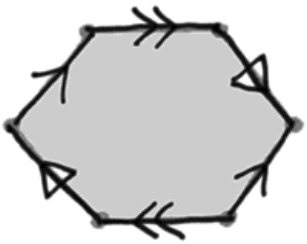
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



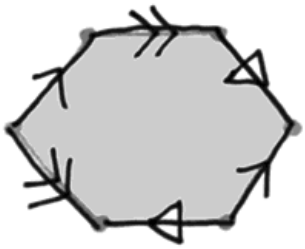
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



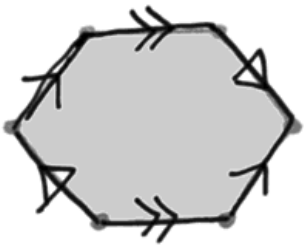
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



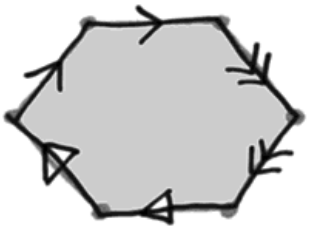
$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no



$+ \; v \; =$
$- \; e \; =$
$+ \; f \; =$
$\chi \; =$
yes / no

Practice First Exam DG

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

You may use scratch paper, but only this sheet will be graded; please present all answers on this sheet.

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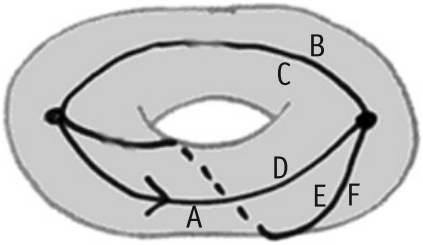
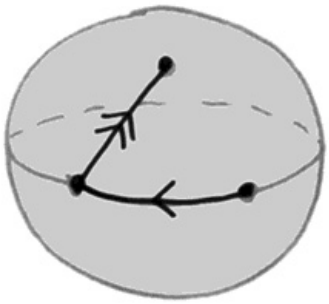
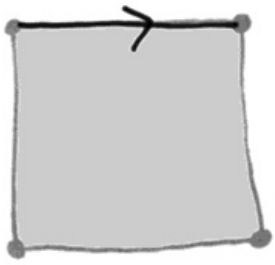


A						**A**

[2] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.





$+ v =$
$- e =$
$+ f =$
$\chi =$

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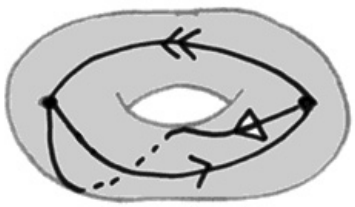

$+ v =$
$- e =$
$+ f =$
$\chi =$

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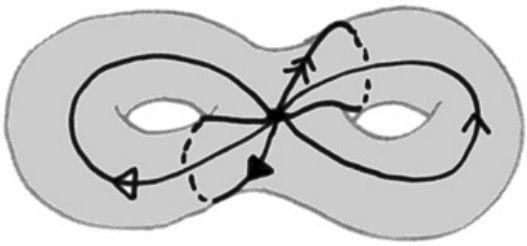
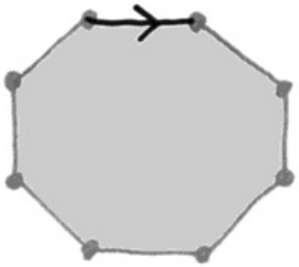
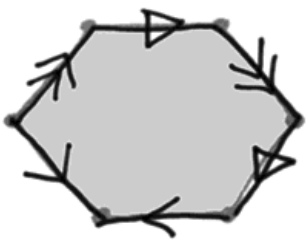


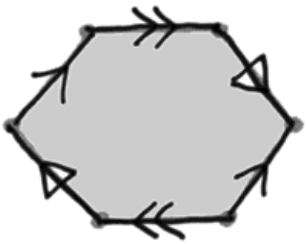


$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$

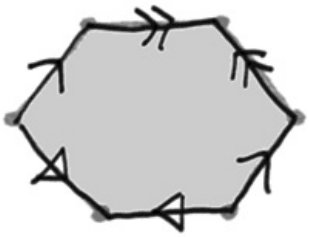
[5] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.



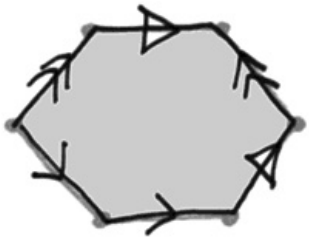
$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



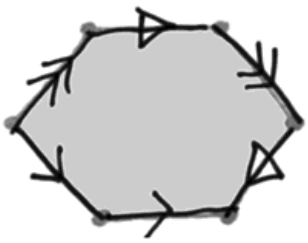
$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



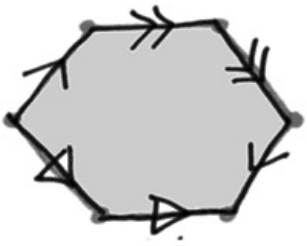
$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



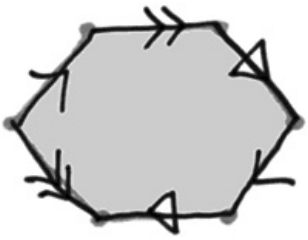
$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



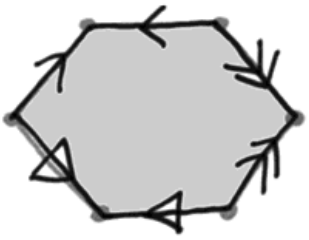
$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no



$+\ v\ =$
$-\ e\ =$
$+\ f\ =$
$\chi\ =$
yes / no

Practice First Exam DH

MATH V1011: Surfaces and Knots, Spring, 2003

Name: _____ **School:** _____

[1]	[2]	[3]	[4]	[5]	TOTAL

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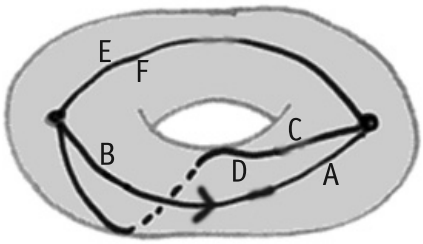

A						**A**

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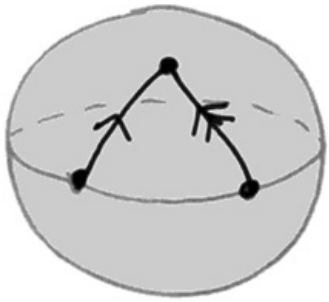
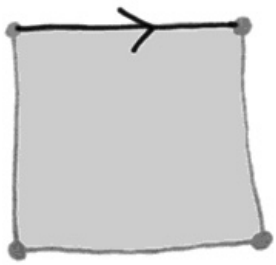
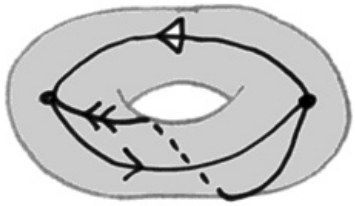




$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

[3] Finish labeling the gluing diagram on the right, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.



$$\begin{aligned} +\ v &= \\ -\ e &= \\ +\ f &= \\ \hline \chi &= \end{aligned}$$

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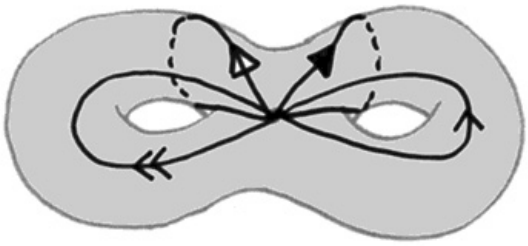

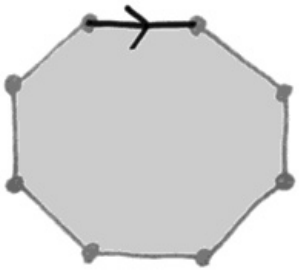

$+ v =$
$- e =$
$+ f =$
$\chi =$

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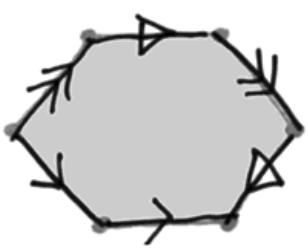
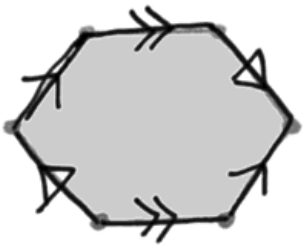
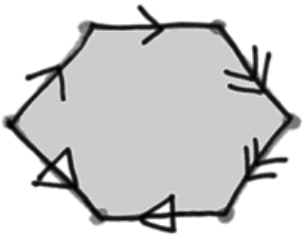


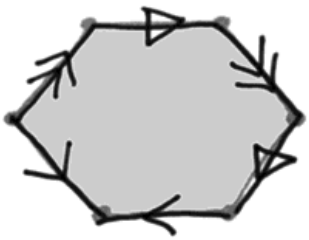
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



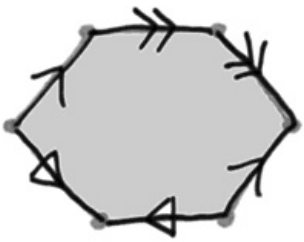
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



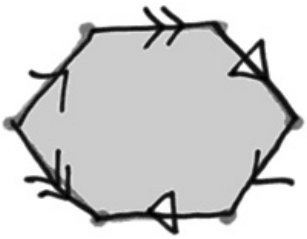
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



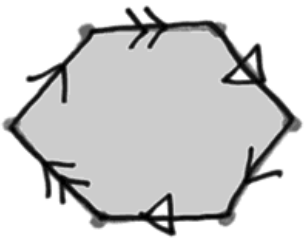
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



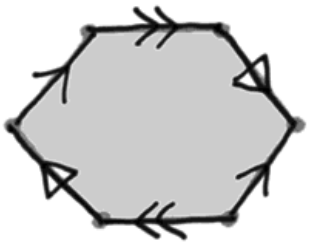
$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
$- e =$
$+ f =$
$\chi =$
yes / no



$+ v =$
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$\chi =$
yes / no