[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?

[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.

\[ +v = \quad -e = \quad +f = \quad \chi = \]

[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.

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

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

\[ \text{yes / no} \]

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

\[ \text{yes / no} \]

\[ + v = \]
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\[ + f = \]
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\[ \text{yes / no} \]

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\text{yes / no}

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\[ \chi = \]

\text{yes / no}

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yes / no

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\[
\begin{align*}
+ v &= \\
- e &= \\
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yes / no

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\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

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\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no
Name: ____________________________  School: _________

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\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \] yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
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![Diagram of a surface with cuts and arrows]

[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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![Gluing Diagram](image)

\[+ v = \quad - e = \quad + f = \quad \chi =\]

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

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<th>Diagram 1</th>
<th>Diagram 2</th>
<th>Diagram 3</th>
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<tr>
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\[ \chi = +v - e + f \]

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\[ \chi = \] yes / no

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\[ + f = \]
\[ \chi = \] yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \] yes / no
Practice First Exam AH
MATH V1011: Surfaces and Knots, Spring, 2003

Name: ____________________________ School: ________

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\[- e = \]
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\[ + v = \]
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\[ \chi = \]

\[ \text{yes / no} \]

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

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]
\[ \text{yes / no} \]
Practice First Exam AI
MATH V1011: Surfaces and Knots, Spring, 2003

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\[ + v = \quad - e = \quad + f = \quad \chi = \]

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\[ + v = \quad - e = \quad + f = \quad \chi = \quad yes / no \]

\[ + v = \quad - e = \quad + f = \quad \chi = \quad yes / no \]

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\[ + v = \]
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\[ \chi = \]

yes / no

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\[ \chi = \]

yes / no

\[ + v = \]
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\[
\begin{align*}
+ v &= \quad - e &= \\
+ f &= \quad \chi &= 
\end{align*}
\]

[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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\[
\begin{align*}
\text{Finish labeling the gluing diagram on the left, so it glues together to form the surface on the left. Compute the Euler characteristic of this surface.}
\end{align*}
\]

\[
\begin{array}{c}
+ v = \hfill \\
- e = \hfill \\
+ f = \hfill \\
\chi = \hfill \\
\end{array}
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\[ + v = \]
\[ - e = \]
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\[ \chi = \]
\[ \text{yes / no} \]

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]
\[ \text{yes / no} \]

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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 AN
MATH V1011: Surfaces and Knots, Spring, 2003

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\[
\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &=
\end{align*}
\]

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

\[
\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}
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\begin{align*}
+ v &= \\
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\chi &= 
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\[
\begin{align*}
+ v &= \\
- e &= \\
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\chi &= \text{yes / no} \\
+ v &= \\
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+ f &= \\
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\chi &= \text{yes / no} \\
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}
\]
Practice First Exam BB
MATH V1101: Surfaces and Knots, Spring, 2003

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Practice First Exam BH  
MATH V1011: Surfaces and Knots, Spring, 2003

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Practice First Exam BK
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Practice First Exam BL
MATH V1011: Surfaces and Knots, Spring, 2003

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![Diagram of a surface with arrows and labels]

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![Diagram](image1)

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[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.

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[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
Practice First Exam CE
MATH V1011: Surfaces and Knots, Spring, 2003

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\[ + v = \quad - e = \quad + f = \quad \chi = \]

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\[
\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}
\]

\[
\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}
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\begin{align*}
+ v &= \\
- e &= \\
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\chi &= \text{yes / no}
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\begin{align*}
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\[ \chi = \]

yes / no

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\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

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\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

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\[ - e = \]
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\[ \chi = \]

yes / no

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\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

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\[ \chi = \]

yes / no
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\[ -e = \]
\[ +f = \]
\[ \chi = \] 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

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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
Practice First Exam CJ
MATH V1011: Surfaces and Knots, Spring, 2003

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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?

![Diagram of cuts and letters]

[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 =

χ =

[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 =

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

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{diagram1.png}
\caption{Diagram of cuts and letters.}
\end{figure}

\[ A \quad \Box \quad \Box \quad \Box \quad A \]

[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{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{diagram2.png}
\caption{Gluing diagram.}
\end{figure}

\[ + \quad v = \]
\[ - \quad e = \]
\[ + \quad f = \]
\[ \chi = \]

[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.

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{diagram3.png}
\caption{Gluing diagram.}
\end{figure}

\[ + \quad v = \]
\[ - \quad e = \]
\[ + \quad f = \]
\[ \chi = \]
[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.

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+ v &= \\
- e &= \\
+ f &= \\
\chi &=
\end{align*}

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\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}

\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}

\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}

\begin{align*}
+ v &= \\
- e &= \\
+ f &= \\
\chi &= \text{yes / no}
\end{align*}
Practice First Exam CL
MATH V1011: Surfaces and Knots, Spring, 2003

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\[ \chi = \]

yes / no

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

yes / no

\[ + v = \]
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\[ \chi = \]

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\[ \text{yes / no} \]

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\begin{align*}
+ v &= \quad - e &= \\
+ f &= \quad \chi &= \\
\end{align*}
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\[
\begin{align*}
+ v &= \quad - e &= \\
+ f &= \quad \chi &= \\
\text{yes / no} & \\
+ v &= \quad - e &= \\
+ f &= \quad \chi &= \\
\text{yes / no} & \\
+ v &= \quad - e &= \\
+ f &= \quad \chi &= \\
\text{yes / no} & \\
+ v &= \quad - e &= \\
+ f &= \quad \chi &= \\
\text{yes / no} & \\
\end{align*}
\]
Practice First Exam DB  
MATH V1011: Surfaces and Knots, Spring, 2003

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![Diagram](image1.png)

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{align*}
+ v &= \quad \\
- e &= \\
+ f &= \quad \\
\chi &= \\
\end{align*}
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\[ + v = \]
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\[ \chi = \]

\[ yes / no \]

\[ + v = \]
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\[ \chi = \]

\[ yes / no \]

\[ + v = \]
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\[ \chi = \]

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\[ \chi = \]

\[ yes / no \]
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![Diagram of a surface with labeled cuts]

[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.

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\[ + f = \]
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\[ - e = \]
\[ + f = \]
\[ \chi = \]

\text{yes / no}

\[ + v = \]
\[ - e = \]
\[ + f = \]
\[ \chi = \]

\text{yes / no}

\[ + v = \]
\[ - e = \]
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\text{yes / no}

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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?

[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.

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

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\[ \chi = \]
yes / no

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