First Exam AA
Surfaces and Knots, Dave Bayer, February 21, 2002

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

[1] 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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[4] Determine what surface each of the following gluing diagrams represents, by computing its Euler characteristic, and determining whether it is orientable or not.

[5] Find a pair of gluing diagrams, above, which represent the same surface. In any set of eight hexagonal gluing diagrams, why must there always be such a pair? Demonstrate that your pair represents the same surface, by modifying the diagrams until they agree.
First Exam AB
Surfaces and Knots, Dave Bayer, February 21, 2002

Name: _______________________________  School: _________

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First Exam AE
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing diagrams](image1)

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First Exam AL
Surfaces and Knots, Dave Bayer, February 21, 2002

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\[ \text{Diagram 2} \]

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First Exam BD
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![Diagram](image1)

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First Exam BM  
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing Diagrams]

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First Exam CG
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam DC
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam DF
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First Exam EG
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First Exam FB  
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam GM
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam HC
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam HG
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam HK
Surfaces and Knots, Dave Bayer, February 21, 2002

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Name:

School:

First Exam HL
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam HN
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Surface Diagram](image1)

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First Exam IA
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Hexagonal Gluing Diagrams](image)

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Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing Diagram](image1.png)

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![Gluing Diagram](image2.png)

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First Exam JA
Surfaces and Knots, Dave Bayer, February 21, 2002

Name: ___________________________  School: _________

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First Exam JJ
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Hexagonal gluing diagrams](image2)
First Exam JN
Surfaces and Knots, Dave Bayer, February 21, 2002

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[1] 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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[4] 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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First Exam LB
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing diagrams for exercise 4]

[5] Find a pair of gluing diagrams, above, which represent the same surface. In any set of eight hexagonal gluing diagrams, why must there always be such a pair? Demonstrate that your pair represents the same surface, by modifying the diagrams until they agree.

![Gluing diagrams for exercise 5]
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![Gluing Diagrams](image)

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First Exam LJ
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing diagrams](image1)

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![Gluing diagrams](image2)
First Exam LL
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam LM
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam MA
Surfaces and Knots, Dave Bayer, February 21, 2002

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First Exam MH
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing Diagrams](image)

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**First Exam MK**  
Surfaces and Knots, Dave Bayer, February 21, 2002

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![Gluing Diagram 1](image1.png)

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![Gluing Diagram 2](image2.png)

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