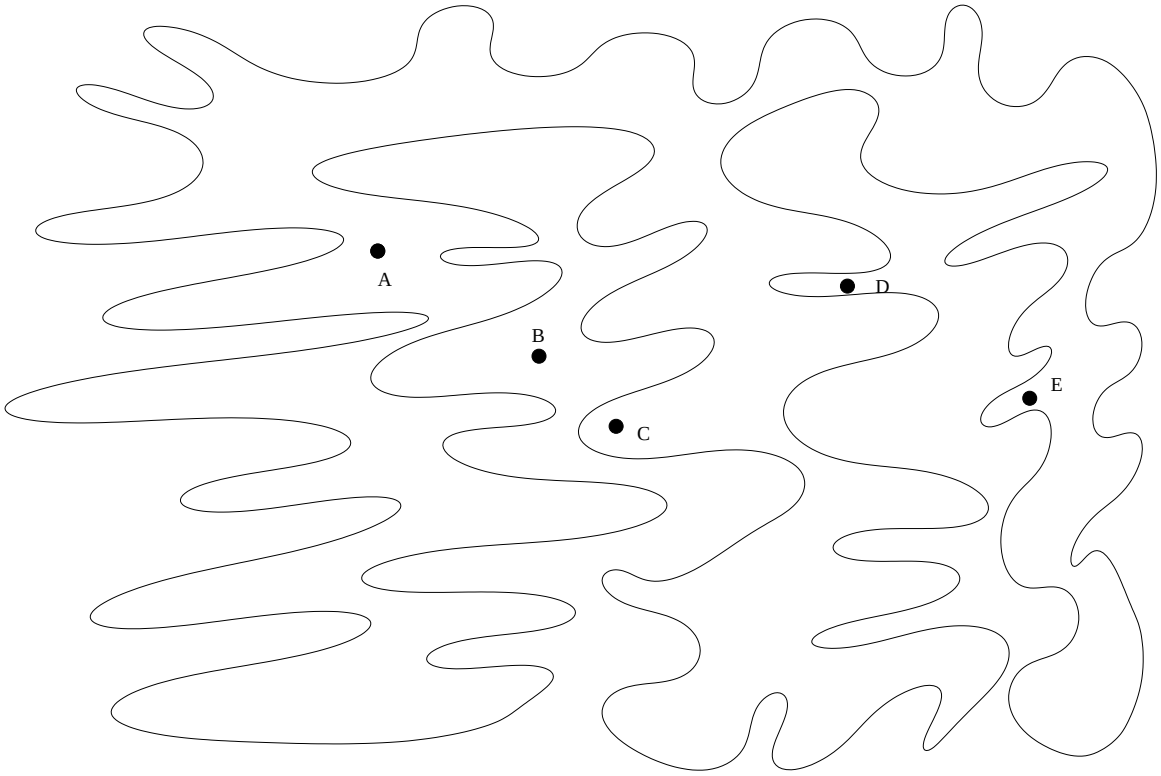
Geometry Worksheet II Name:_____

MA 202
Spring Semester 2004

WARNING: You must **SHOW ALL OF YOUR WORK**. You will receive NO CREDIT if you do not show your work.
DUE: ????

1. Consider the curve and the points A–E shown below. Which of the points are inside the curve? Which of the points are outside the curve? Justify your answer.



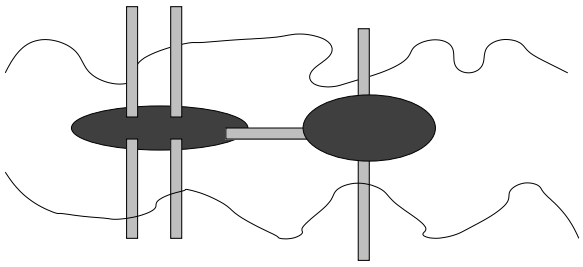
2. (a) Complete the chart below.

Solid	**Number of Vertices**	**Number of Edges**	**Number of Faces**
Cube			
Tetrahedron			
Octahedron			
Icosahedron			
Dodecahedron			
Triangular Prism			
Quadrilateral Prism			
Pentagonal Prism			
Hexagonal Prism			
n-gonal Prism			
Triangular Pyramid			
Quadrilateral Pyramid			
Pentagonal Pyramid			
Hexagonal Pyramid			
n-gonal Pyramid			
Cuboctahedron			
Snub dodecahedron			

(b) Verify Euler's Formula for each of the solids in the chart.

3. Do problem numbers 1–2, 6–8, 10–10, 17 and 21 from Section 11.3.

4. The town of Königsberg included two islands in the middle of the Pregel River and land on the bank of each river. There were seven bridges connecting the islands and the banks of the river. (See the picture below.)



The town people wanted to know if there was a way to walk across each bridge exactly once. The path could start anywhere and need not end where it started.

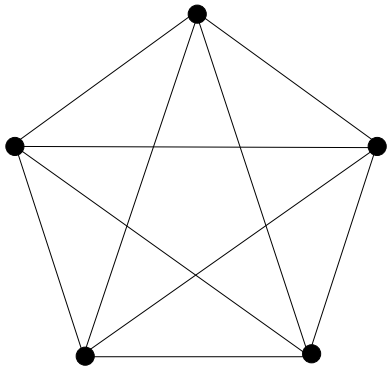
(a) Draw a graph that corresponds to this problem.

(b) Is there a way to travel over each bridge exactly once? You must justify your answer by citing a theorem and explaining how you arrived at your answer by using that theorem.

5. Do problem numbers 5–7 in Section 11.4.

6. Verify Euler's Formula for Connected Planar Networks for each of the networks in Exercise 1 of Section 11.4.

7. Can Euler's Formula for Connected Planar Networks be applied to the network shown below? Explain.



8. Do problem number 22 in Section 11.2.

9. Do problem number 25 in Section 11.2.

10. What is the definition of a circle? How could you use a push pin, a piece of string, and a pencil to draw a circle?

11. What is mean by the center of a circle? a chord of a circle? a diameter of a circle? a tangent line of a circle? an arc of a circle? a sector of a circle?

12. Draw a circle. Draw a tangent line to the circle. Draw the radius of the circle that touches the tangent line. What can you say about the radius and the tangent line? Verify your statement for your drawing.