

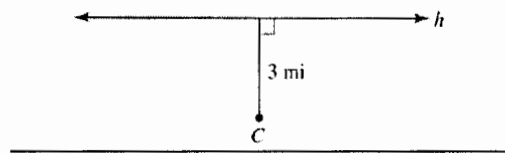
Name: _____

**EDUC 272
Final Exam**

Spring 2008-2009

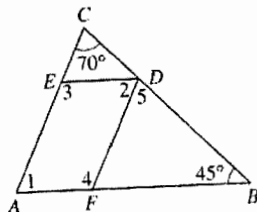
**Geometry
Weight: 30%**

Exercise 1: A CB radio station C is located 3 mi from the interstate highway h. The station has a range of 6.1 mi in all directions from the station. If the interstate (connecting between two or more states) is along a straight line, how many miles of highway are in the range of this station? Explain your answer. (4 pts)



Exercise 2: Consider the $\triangle ABC$ with vertices having coordinates $A(2, 2)$, $B(5, 2)$ and $C(2, 6)$. What type of triangle is $\triangle ABC$? Explain your answer. (4 pts)

Exercise 3: In $\triangle ABC$, line (DE) is parallel to line (AB) , and line (DF) is parallel to line (AC) . If $m(\angle C)=70^\circ$ and $m(\angle B)=45^\circ$, find the measure of the angles labeled 1, 2, 3, 4 and 5. **(4pts)**



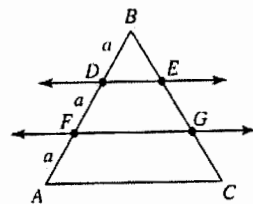
Exercise 4: These conjectures were made by students in a school. Determine whether you agree or disagree and write an argument to support your viewpoint. **(2 ½ pts)**

- All triangles with the same area are congruent.
- Right triangles cannot be scalene.
- Triangles with equal areas have equal perimeters
- The area of any triangle is $\frac{1}{2}$ the area of the rectangle with the same base and height

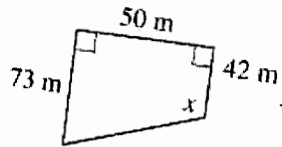
Exercise 5: use slope to determine if there is a single line through the points with coordinates (4, 2), (0, -1), and (7, -5). Explain your reasoning. **(2 pts)**

Exercise 6: If the area of a rectangle remains constant but its perimeter has increased, how has the shape of the rectangle changed? Explain. **(2 pts)**

Exercise 7: Given $\triangle ABC$ with parallel lines dividing segment AB into three congruent segments as shown, how does the area of $\triangle BDE$ compare with area of $DEFG$? Explain. **(2 pts)**



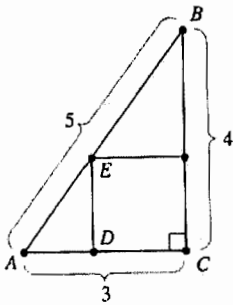
Exercise 8: Given the following figure. Find x . Explain. (2 pts)



Exercise 9:

- Draw a traversable network that has more than four vertices. Indicate an appropriate path through it labeling the starting and stopping points.
- Is your network above an Euler Circuit? Explain why or why not.
- Using a fewest possible number of vertices and arcs, draw a network that is not traversable. (3 ½ pts)

Exercise 10: In triangle ABC, a square has been inscribed as shown. The lengths of the sides of $\triangle ABC$ are 3, 4 and 5 as shown. Find the length of a side of the square. (2 pts)



Exercise 11: In the following figure, quadrilateral ABCD is a parallelogram and P is any point on [AC]. Prove that the area of $\triangle BCP$ is equal to the area of $\triangle DPC$. (2 pts)

Good luck