

Name: _____

Math 572 Midterm
October 31, 2004

Problem	Score
1	
2	
3	
4	
5	
6	
Total	

You are permitted a copy of the theorems from Davis, one 8.5"x11" sheet of handwritten notes, as well as a calculator, straightedge, and compass (though you won't need these last items). You should write all your work on this exam; you should not need any scratch paper (the last page is intentionally left blank in case you need extra room). In the first four problems, give a careful and precise statement of the theorem (with a diagram) followed by a proof in either paragraph or two-column format. The true/false and computation problems should have your final answers clearly marked.

Honor Pledge:

On my honor, as a student, I have neither given nor received unauthorized aid on this examination: _____

(signature)

(date)

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1. If two sides of a triangle are unequal, the angles opposite these sides are unequal and the greater angle lies opposite the greater side. You may prove this using results through III.5.

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2. The sum of the angles of a triangle is 180° . You may use theorems through IV.9.

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3. In the same circle or in equal circles the greater of two unequal chords lies nearer the center, and conversely. You may use any result before or after VI.10, but you may not use VI.10 to prove this.

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4. A line dividing two sides a triangle proportionally is parallel to the third side. You may prove this using results through IX.6.

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5. True/False

a. The proof that two lines in the same plane perpendicular to the same line are parallel requires the parallel postulate.

b. The proof that two lines each parallel to a third line are parallel to each other requires the parallel postulate.

c. A line through a vertex and the incenter of a triangle bisects the angle at the vertex.

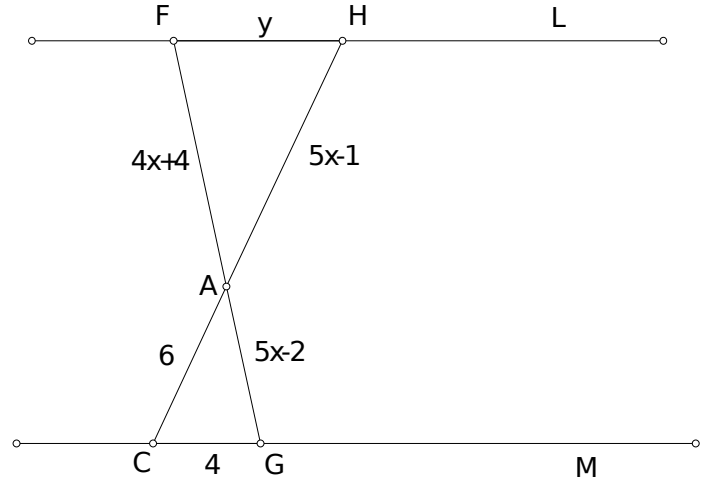
d. If $AB = DE$, $BC = EF$, and $\angle CAB \cong \angle FDE$, then $\triangle ABC \cong \triangle DEF$.

e. A precise definition must be given for all terms used in a proof.

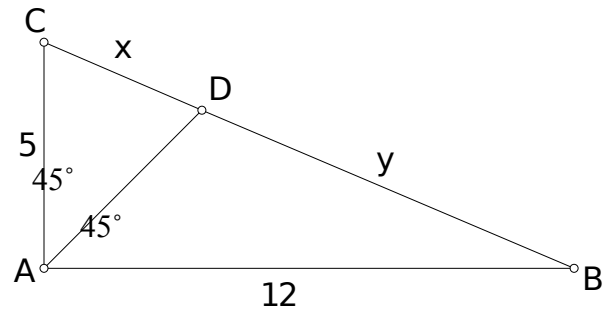
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6. Compute x and y in the following figures.

a. In this figure, lines L and M are parallel, point A is the intersection of \overline{CH} and \overline{FG} , and the segments have the indicated lengths.



b. In this figure, D lies on \overline{BC} and the sides and angles have the indicated measures.



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