

MTH 202 - Quiz 8

13 November 2015

Name: _____

Show all your work to receive full credit on the following problems; carefully organize your solutions so that the work is clear. No calculators or other electronic devices are allowed on this quiz.

1. (5 points) Give a Teacher's Solution (starting with a diagram, and justifying every step) to the following problem:

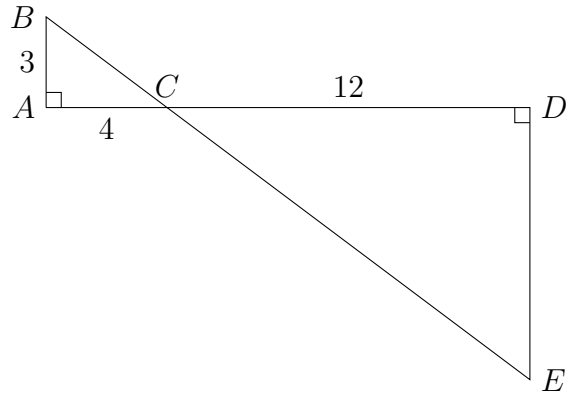
A tree casts a shadow 18 m long while a 3 m long pole casts a shadow 4 m long. How tall is the tree?

2. (8 points) Triangle $\triangle ABC$ contains a 60° angle, and triangle $\triangle DEF$ contains a 120° angle. Furthermore, we have

$$AB = 3DE \quad \text{and} \quad AC = 3DF$$

Is it possible that $BC = 3EF$? Explain why or why not.

3. (4+4+4=12 points) Consider the figure. \overline{AD} and \overline{BE} are straight line segments.



(a) Why are the triangles similar?

(b) What is the scale factor between the triangles?

(c) What is the ratio of the areas of the triangles?