

Today's Learning Goal(s):

By the end of the class, I will be able to:

- prove that two triangles are similar.
- find angles, side lengths and areas of similar triangles.
- distinguish between congruent and *similar*.

Yesterday's entertainment:

Remember: to find the roots means to solve for the x -intercepts.

To solve for the x -intercepts, ALWAYS try to factor the equation first, before trying the Quadratic Formula.

pp. 318-319 #1b, 2, 4bd, 5abd, 6acfg, 8, 9a, 13, 16*no rounding, 17

p. 317 #13

Today's practice: **Be ready for Unit 6 Summative on Tues. Dec. 13**

(Due Monday)

Read pp.331-332 Ex. 1, Ex. 2, and Key Concepts

pp. 333-334 #5bc, 6bc, 7b, 8b, 9b, 14, 15

a ruler is needed >>> p. 347 #1, 2

Return and correct SWYK 6.2
No root on test!

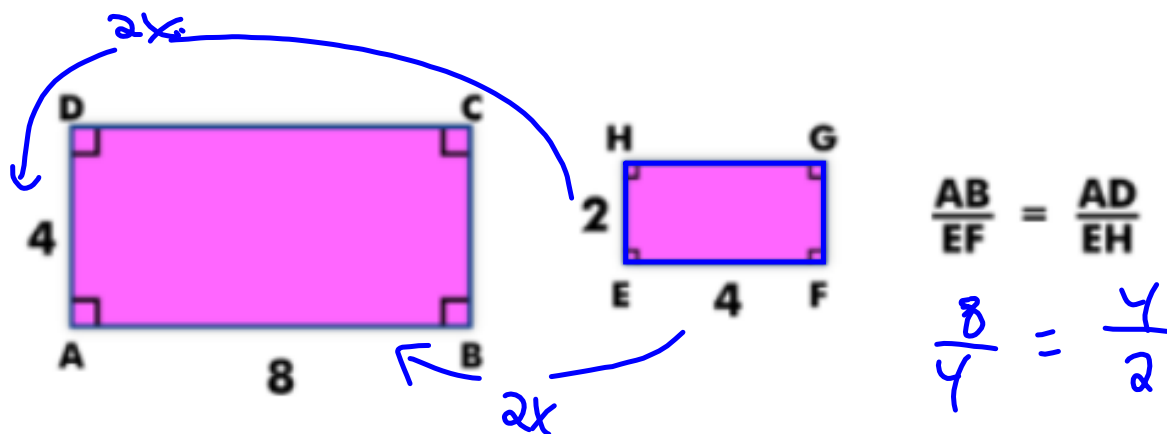
MPM 2DI 7.1 Investigate Properties of Similar Triangles

Date: _____

CONCEPT

Similar geometric figures

Geometric figures are similar if **the ratio of the lengths of their corresponding sides are equal** and **their corresponding angles are congruent**.



The scale factor, k , relates corresponding side lengths.
In this example, $k = \underline{2}$.

CONCEPT

Similar triangles

To show triangles are similar, it is sufficient to show that two angles of one triangle are congruent (equal) to two angles of the other triangle.



PRACTICE Which of these figure pairs are similar?

The grid contains the following figures:

- A1:** A green rectangle with a height of 8 units and a width of 4 units.
- A2:** A green rectangle with a height of 2 units and a width of 2 units.
- B1:** A pink right-angled triangle with a vertical leg of 3 units and a horizontal leg of 4 units.
- B2:** A pink right-angled triangle with a vertical leg of 1 unit and a horizontal leg of 1 unit.
- C1:** A blue right-angled triangle with a vertical leg of 4 units and a horizontal leg of 3 units.
- C2:** A blue right-angled triangle with a vertical leg of 2 units and a horizontal leg of 1 unit.
- D1:** An orange rectangle with a height of 4 units and a width of 1 unit.
- D2:** An orange rectangle with a height of 1 unit and a width of 1 unit.
- E1:** A red right-angled triangle with a vertical leg of 3 units and a horizontal leg of 4 units.
- E2:** A red right-angled triangle with a vertical leg of 1 unit and a horizontal leg of 1 unit.

Handwritten green annotations include a bracket above A1 labeled '8' and a bracket to the right of A2 labeled '2'.

DEMO

PRACTICE

Solution

The diagram illustrates the following shapes and their relationships:

- Rectangles:**
 - A1:** A large green rectangle with a height of 2 units and a width of 4 units.
 - A2:** A smaller green rectangle with a height of 1 unit and a width of 2 units.
- Triangles:**
 - B1 and B2:** Two pink right-angled triangles sharing a common hypotenuse. B1 has a vertical leg of 2 units and a horizontal leg of 2 units. B2 has a vertical leg of 1 unit and a horizontal leg of 1 unit.
 - C2:** A blue right-angled triangle with a vertical leg of 2 units and a horizontal leg of 4 units.
 - E1 and E2:** Two red right-angled triangles. E1 has a vertical leg of 2 units and a horizontal leg of 2 units. E2 has a vertical leg of 1 unit and a horizontal leg of 1 unit.

Legend:

- Not similar →
- ← Similar ~

Relationships shown in the diagram:

- A1 and A2 are similar (A2 is a scaled-down version of A1).
- B1 and B2 are similar (B2 is a scaled-down version of B1).
- E1 and E2 are similar (E2 is a scaled-down version of E1).
- C2 is not similar to A1 or A2.

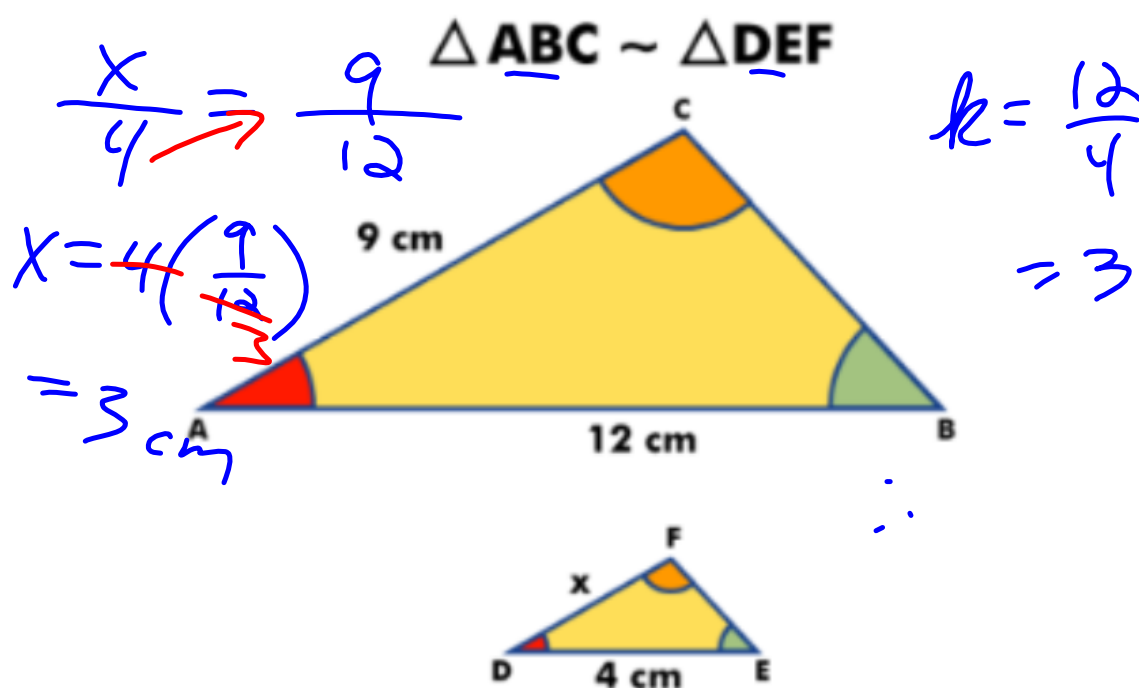
CONCEPT

Complete the ratios
for the corresponding sides $\triangle ABC \sim \triangle DEF$ 

$$\frac{AC}{DF} = \frac{BC}{EF} = \frac{AB}{DE}$$
$$\frac{4}{8} = \frac{5}{10} = \frac{3}{6}$$

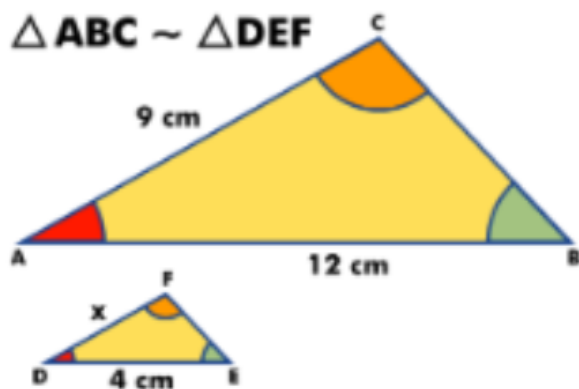
CONCEPT

Find the length of a side



CONCEPT

Solution

 $\triangle ABC \sim \triangle DEF$ 

$$\frac{AB}{DE} = \frac{AC}{DF}$$

$$\frac{12}{4} = \frac{9}{x}$$

$$(12)(x) = (4)(9)$$

$$12x = 36$$

$$\frac{12x}{12} = \frac{36}{12}$$

$$x = 3 \quad \mathbf{DF = 3 \text{ cm}}$$

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