2-5-19

Aim: SWBAT use the properties of similar triangles to find the missing lengths of similar figures.

HW: Packet Pages 13 -14

Quiz Friday ???

Do Now: Packet Page 10

HOMEWORK

Solve algebraically.

1. You are building a model plane. The scale for the model is 1 inch = 125 feet. If the plane is 1,500 feet long, how long would the model be?

let x = the length of the model

$$\frac{1 \text{ in.}}{125 \text{ ft}} = \frac{x \text{ in.}}{1500 \text{ ft.}}$$

$$\frac{125x}{125} = \frac{1500}{125}$$

$$x = 12$$

The model is 12 inches long.

2. The distance on a park map between the Merry-go-Round and the Log Flume is 3 inches. The scale was 1 inch = 525 yards. What is the actual distance between the Merry-go-Round and the Log Flume?

let x = the actual distance

$$\frac{1 \text{ in.}}{525 \text{ yds}} = \frac{3 \text{ in.}}{x}$$

$$x = 1575$$

The actual distance is 1575 ft.

3. A dolphin in an aquarium is 12 feet long. A scale model of the dolphin is 3 inches long. What is the scale factor of the model?

$$\frac{3 \text{ in.}}{12 \text{ ft}}$$

1 in.	1 in.	1 in.
4 ft	4 ft.	4 ft
12 ft		

The scale is 1 in : 4 ft.

$$\frac{1 \text{ in.}}{4 \text{ ft}} \Rightarrow \frac{1 \text{ in.}}{48 \text{ in.}}$$

4. Danielle is creating a scale drawing of her room. The rectangular room measures $20\frac{1}{2}$ feet by 25 feet. If her drawing uses the scale 1 inch represents 2 feet of the actual room, will her drawing fit on an $8\frac{1}{2}$ by 11 inch piece of paper?

let x = the drawing's length

$$\frac{1 \text{ in.}}{2 \text{ ft.}} = \frac{x \text{ in.}}{20\frac{1}{2} \text{ ft.}}$$

$$\frac{2x}{2} = \frac{20\frac{1}{2}}{2}$$

$$x = 10\frac{1}{4}$$

let y = the drawing's width

$$\frac{1 \text{ in.}}{2 \text{ ft.}} = \frac{y \text{ in.}}{25 \text{ ft.}}$$

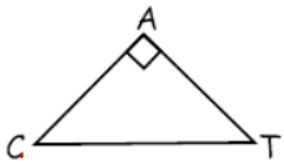
$$\frac{2y}{2} = \frac{25}{2}$$

$$y = 12\frac{1}{2}$$

The drawing is $10\frac{1}{4}$ in. by $12\frac{1}{2}$ in. It will not fit on and $8\frac{1}{2}$ in by 11 in piece of paper.

Aim: SWBAT use the properties of similar triangles to find missing lengths of similar figures.

Do Now: Use the given triangle to answer the following questions.



1) A triangle is named with three letters, name this triangle. △ACT

2) Line segments make up the sides of a triangle, line segments are named with two points. Name the three line segments in this triangle. AC, CT, AT

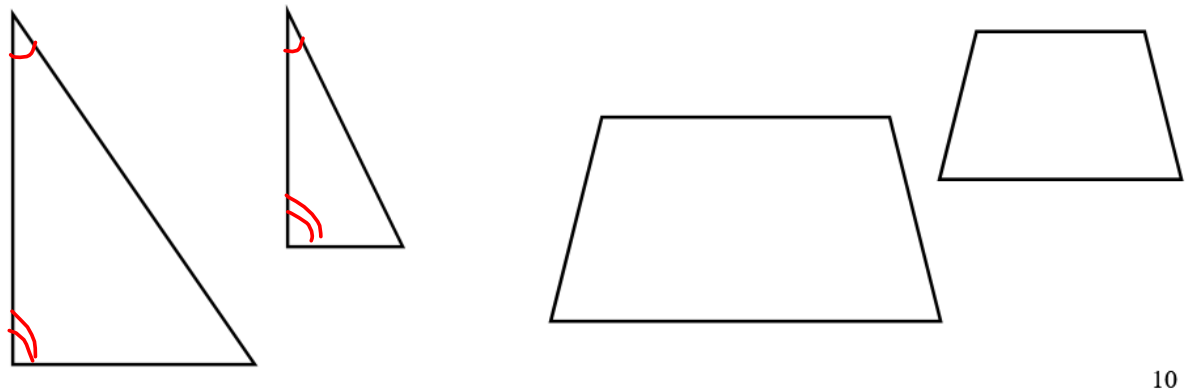
3) Angles are formed where two line segments meet. Name the three angles in this triangle. ∠A, ∠C, ∠T

4) What type of triangle is this? (Acute, obtuse or right) _____

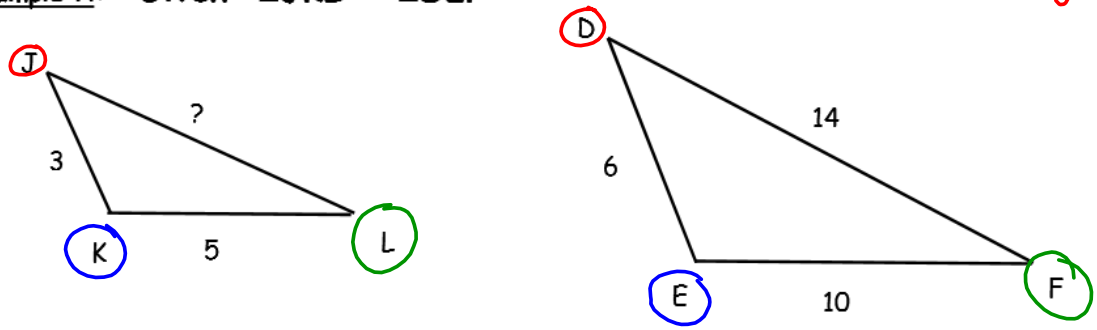
SIMILAR FIGURES ~

- Have the same shape but different sizes
- Corresponding angles are ≅ (congruent) exactly the same
- Corresponding sides are proportional.

Examples of Similar Figures



Example A: **Given: ΔJKL ~ ΔDEF** "Triangle JKL is similar to Triangle DEF."



1) List the corresponding **angles**.

∠J and ∠D ∠K and ∠E ∠L and ∠F

2) List the corresponding **sides**.

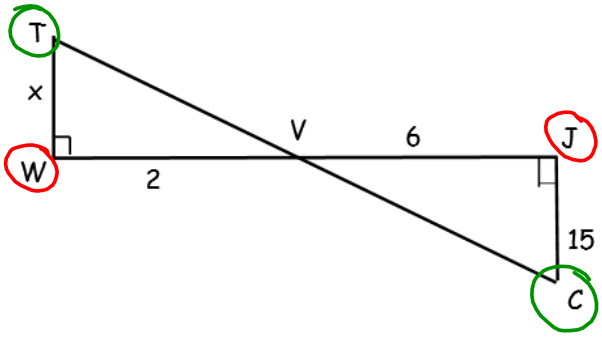
$\overline{JK}$ and $\overline{DE}$ $\overline{KL}$ and $\overline{EF}$ $\overline{LJ}$ and $\overline{FD}$

3) Solve for the missing side of ΔJKL using a proportion.

$\frac{3}{6} = \frac{x}{14}$ $\frac{6x}{6} = \frac{42}{6}$

$x = 7$

Example B: **Given: ΔTWV ~ ΔCJV** **Solve for x using a proportion.**

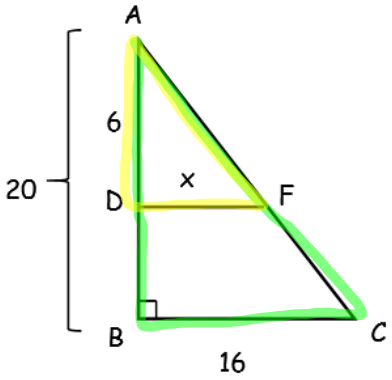


$\frac{2}{6} = \frac{x}{15}$

$\frac{6x}{6} = \frac{30}{6}$

$x = 5$

Example C: **Given:** $\Delta ADF \sim \Delta ABC$ Solve for x using a proportion.



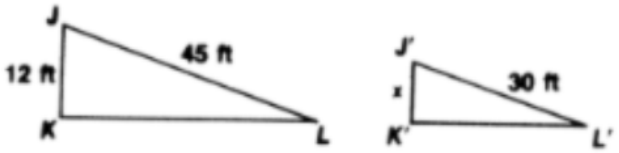
$$\frac{6}{20} = \frac{x}{16}$$

$$\frac{20x}{20} = \frac{96}{20}$$

$$x = 4.8$$

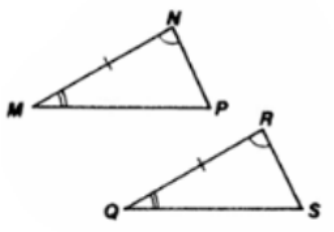
Extra Practice:

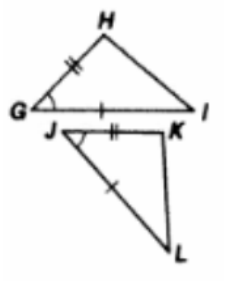
1) Solve for x algebraically.



HOMEWORK

List ALL corresponding parts.

1) 

2) 

Corresponding Sides

_____

_____

_____

Corresponding Sides

_____

_____

_____

Corresponding Angles

_____

_____

_____

Corresponding Angles

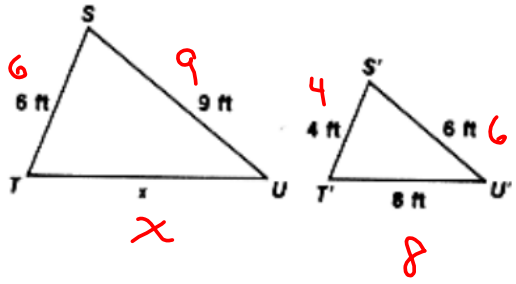
_____

_____

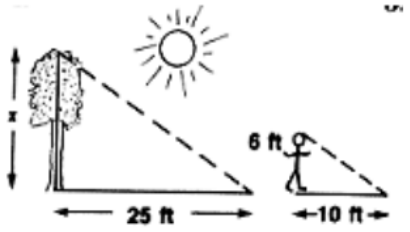
_____

Each of the following pairs of triangles is similar. Find the missing side(s) algebraically using a proportion.

3) Solve for x

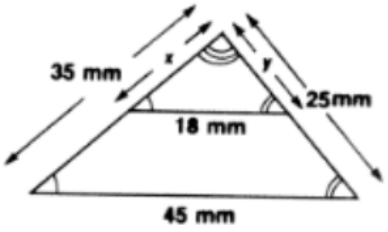


4) Solve for x



For #'s 5 and 6 you will need to write two proportions. (Use a proportion to solve for x first, then write another proportion to solve for y.)

5) Solve for x and y



6) Solve for x and y