

1/7/08 Objective: TSWBAT identify similar figures and find the unknown lengths in similar figures

Vocabulary

① similar figures - figures that have the same shape but not necessarily the same size

② congruent angles - angles that have equal measures

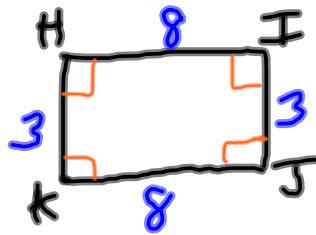
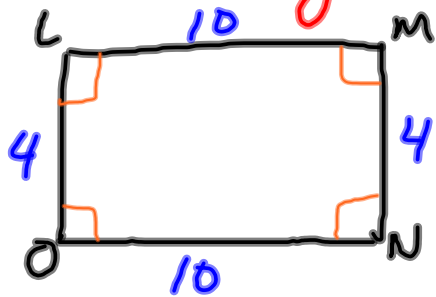
Symbols

The symbol \sim means "is similar to"

the symbol \cong means "is congruent to"

- * If two polygons are similar then :
- corresponding angles are congruent and
 - lengths of corresponding sides are in proportion

Identify Similar Polygons



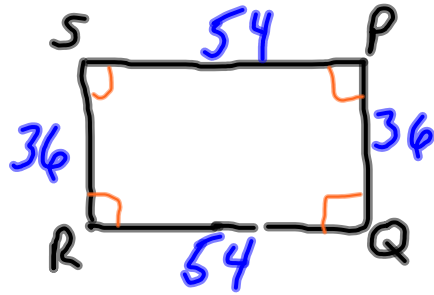
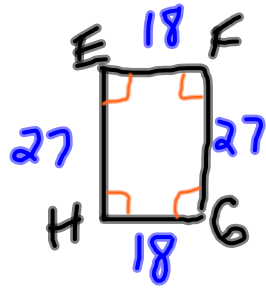
step 1: First Check to see if Corresponding angles are congruent

all angles are congruent because all are right angles

step 2: Check to see if Corresponding sides are proportional

$$\begin{array}{r} 30 \neq 32 \\ 10 \quad \nearrow \quad \searrow \quad 8 \\ \hline 4 \quad \nearrow \quad \searrow \quad 3 \end{array}$$

Figures are not similar because corresponding sides are not proportional



Is rectangle EFGH similar to rectangle PQRS? Explain why or why not.

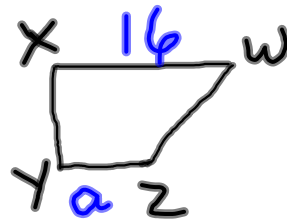
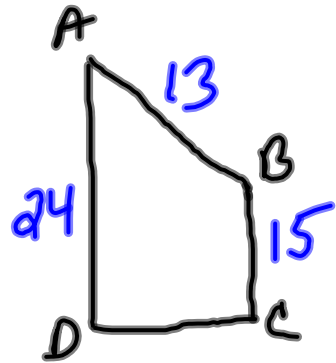
$$972 = 972$$

$$\frac{27}{18} \neq \frac{54}{36}$$

$$972 = 972$$

Figures are similar because corresponding sides are proportional

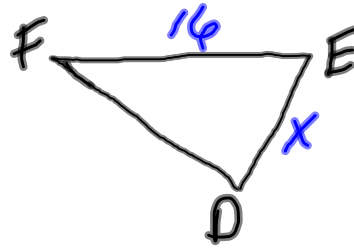
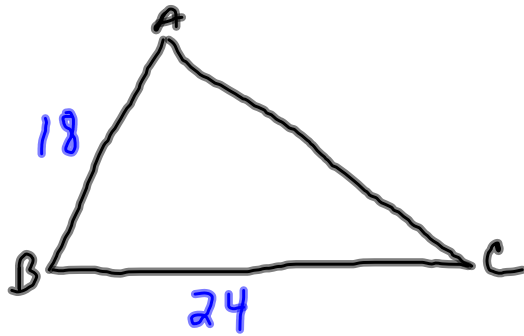
Find the Unknown Lengths of Similar Polygons



$$\frac{24}{15} = \frac{16}{a}$$

$$\frac{24a}{24} = \frac{240}{24}$$

$$a = 10$$

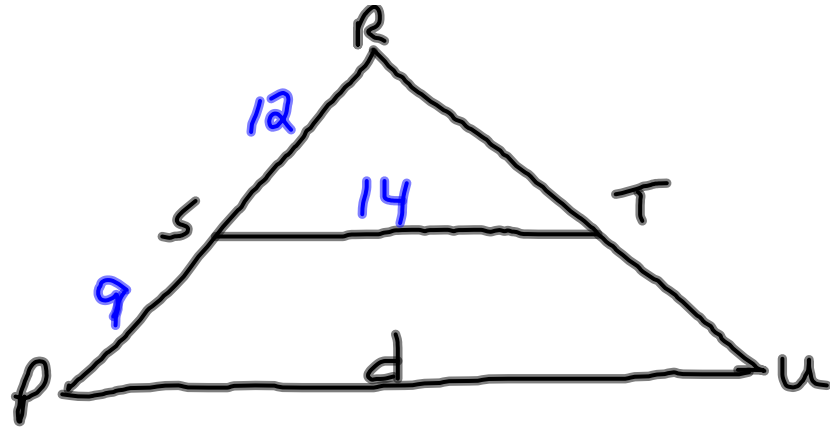


$$\frac{18}{24} = \frac{x}{16}$$

$$\frac{24x}{24} = \frac{288}{24}$$

$$x = 12$$

If DC is 14 ft, what is the length of AC ?

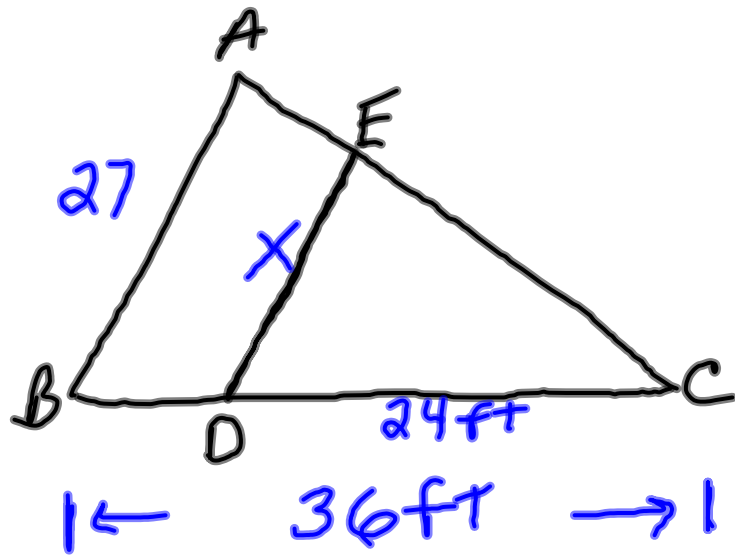


Find the length of
d ?

$$\frac{12}{14} = \frac{(9+12)}{d}$$

$$\frac{12d}{12} = \frac{294}{12}$$

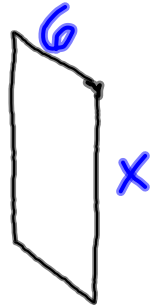
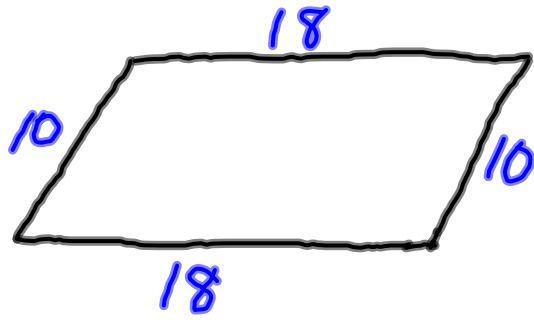
$$d = 24.5$$



$$\frac{27}{36} = \frac{X}{24}$$

$$36x = 648$$
$$\frac{648}{36} = \frac{36x}{36}$$

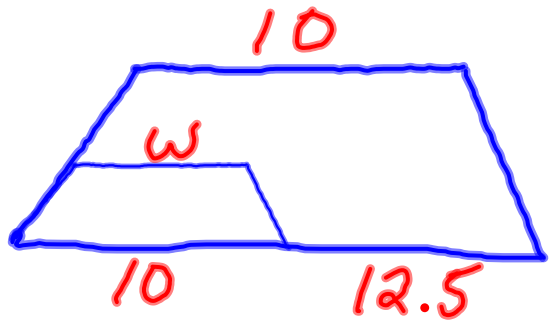
$$x = 18$$



$$\frac{18}{10} = \frac{x}{6}$$

$$\frac{10x}{10} = \frac{108}{10}$$

$$x = 10.8$$



$$\frac{10}{(10+12.5)} = \frac{w}{10}$$

$$\frac{10}{22.5} = \frac{w}{10}$$

$$\frac{22.5 w = 100}{22.5} \quad \frac{100}{22.5}$$

$$w = 4.\overline{44}$$

Homework: pp. 268-269, 1-18