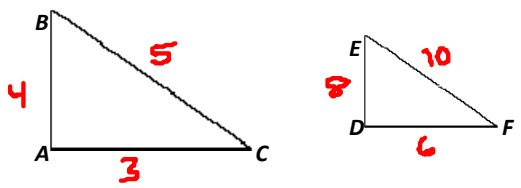
Similar Figures

Two figures are similar if they are the same shape but not necessarily the same size.



$$\triangle ABC \sim \triangle DEF$$

Corresponding Angles are Congruent

$\measuredangle A \cong \measuredangle D$

$\measuredangle B \cong \measuredangle E$

$\measuredangle C \cong \measuredangle F$

Corresponding Sides are in Proportion

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

$$\frac{4}{8} = \frac{3}{6} = \frac{5}{10} \qquad \frac{1}{2}$$

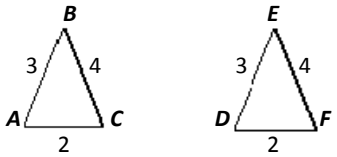
What is the ratio of $\triangle ABC$ to $\triangle DEF$?

$\frac{1}{2}$ $\quad 1:2$

What is the ratio of $\triangle DEF$ to $\triangle ABC$?

$\frac{2}{1}$ $\quad 2:1$

What is the ratio of $\triangle ABC$ to $\triangle DEF$?



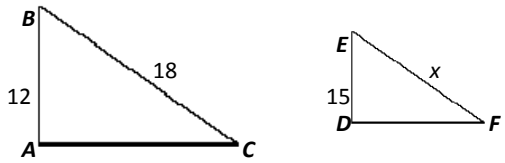
$$\frac{AB}{DE} = \frac{3}{3} = \frac{1}{1}$$

$$\frac{BC}{EF} = \frac{4}{4} = \frac{1}{1} \qquad 1:1$$

$$\frac{AC}{DF} = \frac{2}{2} = \frac{1}{1}$$

Directions: Find the value of *x*.

1. $\triangle ABC \sim \triangle DEF$



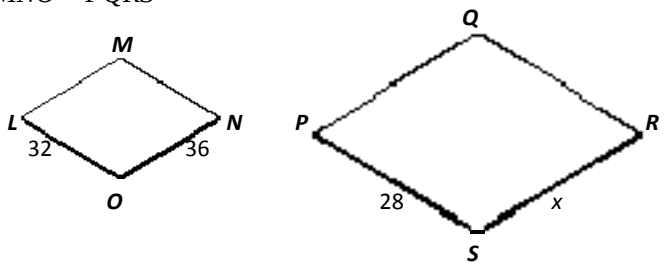
$$\frac{AB}{DE} = \frac{BC}{EF}$$

$$\frac{12}{15} = \frac{18}{x}$$

$$\frac{12x}{12} = \frac{270}{12}$$

$$\boxed{x = 22.5}$$

2. *LMNO* ~ *PQRS*



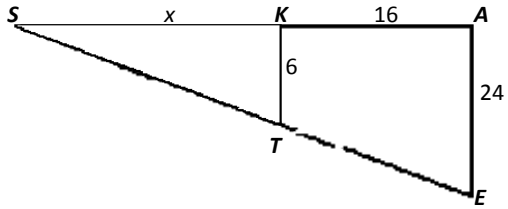
$$\frac{LO}{PS} = \frac{ON}{SR}$$

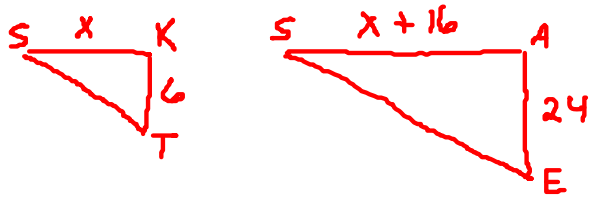
$$\frac{32}{28} = \frac{36}{x}$$

$$\frac{32x}{32} = \frac{1008}{32}$$

$$\boxed{x = 31.5}$$

3. $\triangle SKT \sim \triangle SAE$





$$\frac{SK}{SA} = \frac{KT}{AE}$$

$$\frac{x}{x+16} = \frac{6}{24}$$

$$24x = 6(x+16)$$

$$24x = 6x + 96$$

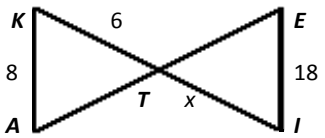
$$-6x \quad -6x$$

$$18x = 96$$

$$x = \frac{96 \div 6}{18 \div 6} = \frac{16}{3}$$

$$\boxed{x = \frac{16}{3} \text{ OR } 5\tfrac{1}{3}}$$

4. $\triangle KAT \sim \triangle IET$



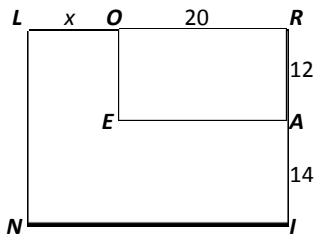
$$\frac{KA}{IE} = \frac{KT}{IT}$$

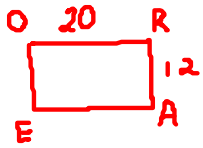
$$\frac{8}{18} = \frac{6}{x}$$

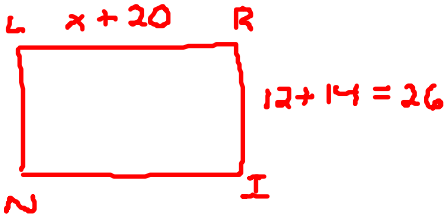
$$\frac{8x}{8} = \frac{108}{8}$$

$$\boxed{x = 13.5}$$

5. *LRIN ~ ORAE*







$$\frac{OR}{LR} = \frac{RA}{RI}$$

$$\frac{20}{x+20} = \frac{12}{26}$$

$$12(x+20) = 520$$

$$12x + 240 = 520$$

$$-240 \quad -240$$

$$\frac{12x}{12} = \frac{280}{12}$$

$$x = \frac{280 \div 4}{12 \div 4} = \frac{70}{3}$$

$$\boxed{x = \frac{70}{3} \text{ OR } 23\tfrac{1}{3}}$$