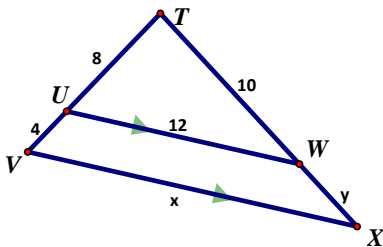


Polygons are **similar** if and only if:

- 1) All pairs of corresponding sides are **Proportional/have same scale factor**.
- 2) All pairs of corresponding angles are **≅**.

1. Solve for the missing information, given that the two triangles in each question are SIMILAR.

a) Similarity Statement: **$\triangle UTW \sim \triangle VTX$**



$$\frac{\text{small}}{\text{large}} = \frac{8}{12}$$

$$\frac{8}{12} = \frac{10}{10+y}$$

$$\frac{8}{12} = \frac{12}{x}$$

$$8x = 12(12)$$

$$8x = 144$$

$$x = 18$$

$$8(10+y) = 12(10)$$

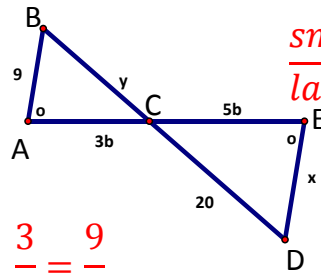
$$80 + 8y = 120$$

$$8y = 40$$

$$y = 5$$

x = 18 y = 5

b) Similarity Statement: **$\triangle ABC \sim \triangle EDC$**



$$\frac{\text{small}}{\text{large}} = \frac{3b}{5b} = \frac{3}{5}$$

$$\frac{3}{5} = \frac{9}{x}$$

$$3x = 45$$

$$x = 15$$

$$\frac{3}{5} = \frac{y}{20}$$

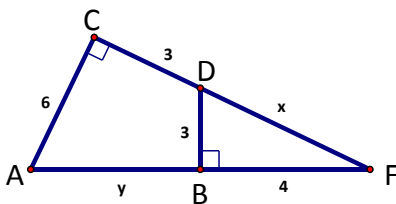
$$60 = 5y$$

$$y = 12$$

x = 15 y = 12

2. Use the Pythagorean Theorem to help you on these. Solve for the missing values.

a) Similarity Statement: **$\triangle ACF \sim \triangle DBF$**



$$\frac{\text{small}}{\text{large}} = \frac{3}{6}$$

$$\frac{3}{6} = \frac{5}{4+y}$$

$$3^2 + 4^2 = x^2$$

$$9 + 16 = x^2$$

$$25 = x^2$$

$$x = 5$$

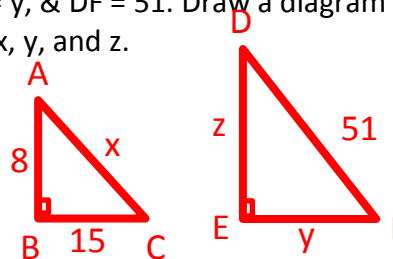
$$3(4+y) = 6(5)$$

$$12 + 3y = 30$$

$$3y = 18$$

$$y = 6$$

b) If $\triangle ABC \sim \triangle DEF$, and right $\triangle ABC$ has sides of $AB = 8$, $BC = 15$, & $AC = x$ where AC is the hypotenuse. Also, right $\triangle DEF$ has sides $DE = z$, $EF = y$, & $DF = 51$. Draw a diagram and solve for x , y , and z .



$$\frac{17}{51} = \frac{8}{z}$$

$$17z = 51(8)$$

$$17z = 408$$

$$z = 24$$

$$8^2 + 15^2 = x^2$$

$$64 + 225 = x^2$$

$$289 = x^2$$

$$x = 17$$

$$\frac{17}{51} = \frac{15}{y}$$

$$17y = 51(15)$$

$$17y = 765$$

$$y = 45$$