

I can write a ratio.

The Leaning Tower of Pisa in Italy is about 185 ft tall. A model of the Leaning Tower in 6 in tall. What is the ratio of the height of the model to the height of real tower?

$$\frac{1}{370} \text{ in.} \quad 1:370 \text{ in.}$$

I can write a proportion.

The scale of a map is 1 in = 40 mi. Write a proportion to find the distance in miles if the distance on the map is 3.5 in.

$$\frac{1}{40} = \frac{3.5}{x}$$

$$x = 140 \text{ miles}$$

I can solve a proportion

$$\frac{2x-1}{x} = \frac{x+1}{3}$$

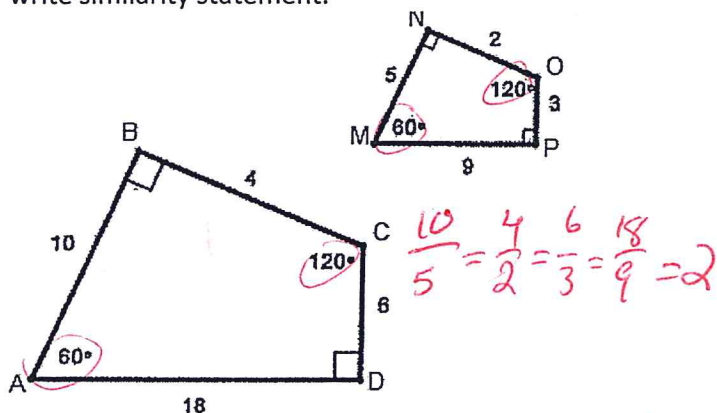
$$x = \frac{5 \pm \sqrt{13}}{2} \quad (4.3, -0.7)$$

I can solve a proportion

$$\frac{18}{n+6} = \frac{6}{n}$$

$$n = 3$$

I can determine and explain if polygons are similar. Prove that the following quadrilaterals are similar and write similarity statement.

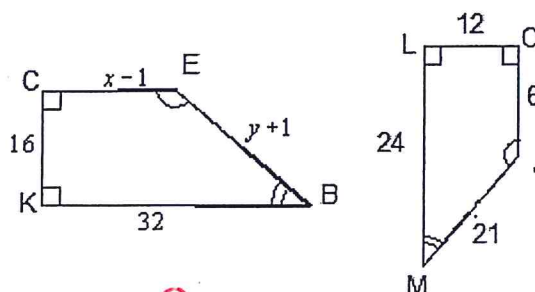


All sides are proportional +  $\angle$ s are  $\cong$ .

$$ABCD \sim MNOP$$

I can use similar figures properties to solve for a variable or missing side.

The two trapezoids are similar. Write a similarity statement and find the value of x and y.



$$x = 9$$

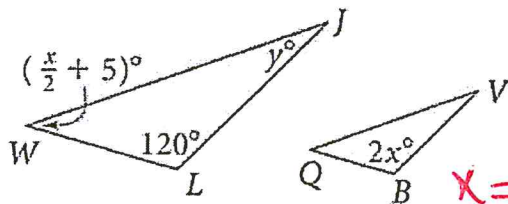
$$y = 27$$

$$KCEB \sim LOJM$$

I can use similar figures properties to solve for a variable or missing angle.

Given the following calculate the value of x and y. Show complete work

Find the values of the variables.



$\Delta WLJ \sim \Delta QBV$

$$x = 60$$

$$y = 25^\circ$$

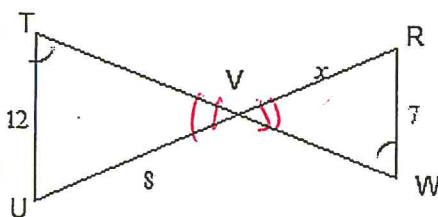
I can prove similarity of two triangles using the triangle similarity postulates



Postulate Support  $\frac{4}{6} = \frac{2}{3}$   $\angle KPM \cong \angle RPQ$  (Vert.  $\angle$ 's  $\cong$ )

Similarity statement  $\Delta KPM \sim \Delta RPQ$  by SAS ~

I can prove similarity of two triangles using the triangle similarity postulates



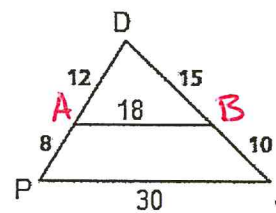
Not drawn to scale

Postulate Support  $\angle T \cong \angle W$   $\angle TVU \cong \angle WVR$  (Vert.  $\angle$ 's  $\cong$ )

Similarity statement

$\Delta TVU \sim \Delta WVR$  by AA ~

I can prove similarity of two triangles using the triangle similarity postulates



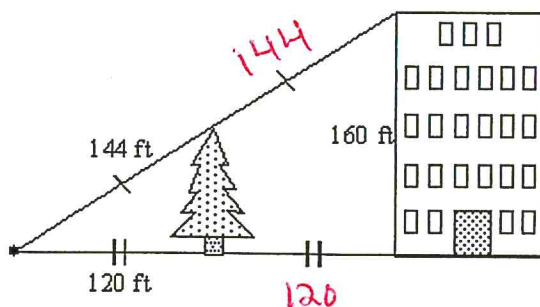
Postulate Support  $\frac{12}{20} = \frac{15}{30} = \frac{18}{25}$   $= \frac{3}{5}$

Similarity statement

$\Delta ADB \sim \Delta PDJ$  by SSS ~

Applications of similar triangles: I can use properties of similar triangles to determine indirect measures.

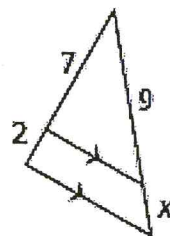
Use the information in the diagram to determine the height of the tree to the nearest foot.



80 ft. tall

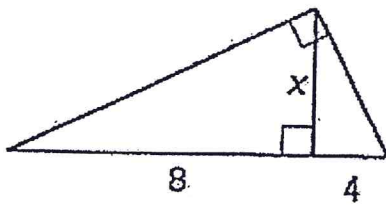
Applications of similar triangles: I can use properties of similar triangles to determine missing sides

Find the value of x. Round your answer to the nearest thousandths.

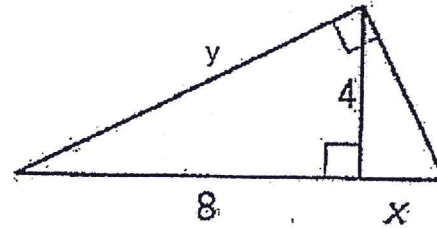


$x = 2.571$

I can use relationships in similar right triangles to find a missing side.



$$x = 4\sqrt{2}$$



$$x = 2$$

$$y = 4\sqrt{5}$$

**Algebra** Find the geometric mean of each pair of numbers.

1. 32 and 8  $16$

2. 4 and 16  $8$

3. 11 and 7  $\sqrt{77}$

4. 2 and 22  $2\sqrt{11}$

5. 10 and 20  $10\sqrt{2}$

6. 6 and 30  $6\sqrt{5}$

**Algebra** If  $\frac{x}{y} = \frac{5}{8}$ , which of the following must be true?

7.  $8x = 5y$  **True**

8.  $5x = 8y$  **False**

9.  $\frac{y}{x} = \frac{8}{5}$  **True**

10.  $\frac{x}{5} = \frac{y}{8}$  **True**

11.  $\frac{x}{8} = \frac{y}{5}$  **False**

12.  $\frac{x+y}{y} = \frac{13}{8}$  **True**

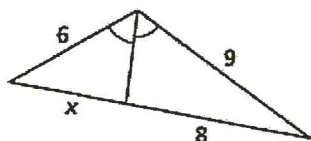
13.  $\frac{x}{y} = \frac{10}{16}$  **True**

14.  $\frac{x}{2y} = \frac{5}{4}$  **False**

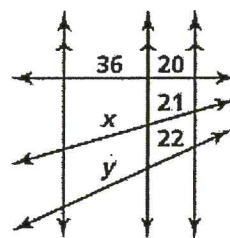
15.  $\frac{x}{x-y} = \frac{5}{3}$  **False**

I can use properties of similar triangles, Side-Splitter Corollary and the Triangle-Angle Bisector Theorem to find a missing value.

Solve for all the missing variables.

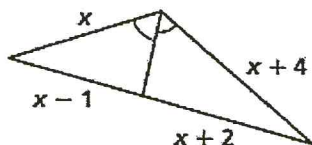


$$x = \frac{16}{3} \quad (5.33)$$

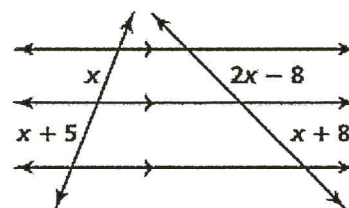


$$x = \frac{189}{5} \quad (37.8)$$

$$y = \frac{198}{5} \quad (39.6)$$

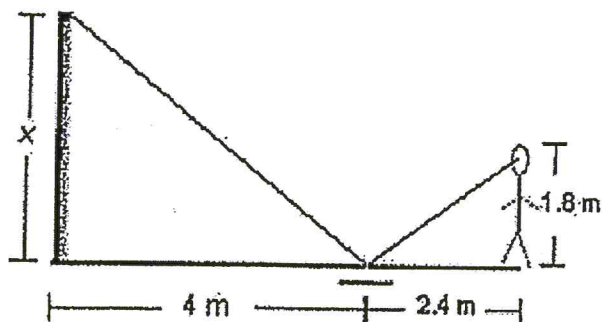


$$x = 4$$



$$x = 10$$

Ramon places a mirror on the ground 4 m from the base of a geyser. He walks backward 2.4 m until he can see the top of the geyser in the mirror. At this point Ramon's eyes are 1.8 m above the ground. Find the height of the geyser.



$$3 \text{ m}$$