Similarity Review

185·10 + 185·2

I can write a ratio.

The Learning 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?

$185 \times 12 = 1850 + 370$, 2220

$\frac{\text{model}}{\text{real}} = \frac{6}{2220} = \frac{1}{370}$

$6'' \to \frac{1}{2}$ $\quad \frac{\frac{1}{2} \cdot 2}{185 \cdot 2} = \frac{1}{370}$

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.

$\frac{\text{map}}{\text{real}} = \frac{\text{map}}{\text{real}}$ $\quad \frac{1}{40} = \frac{3.5}{x}$

$x = 140$

140 miles

I can solve a proportion

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

$x(x+1) = 3(2x-1)$

$x^2 + x = 6x - 3$

$x^2 - 5x + 3 = 0$ $\quad a=1,\ b=-5,\ c=3$

$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(3)}}{2(1)} = \frac{5 \pm \sqrt{25-12}}{2}$

$x = \frac{5 \pm \sqrt{13}}{2}$

I can solve a proportion

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

$18n = 6(n+6)$ *

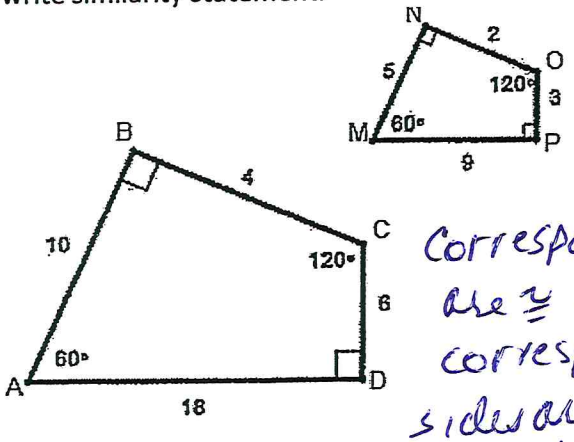
$18n = 6n + 36$

$12n = 36$

$n = 3$

I can determine and explain if polygons are similar.

Prove that the following quadrilaterals are similar and write similarity statement.



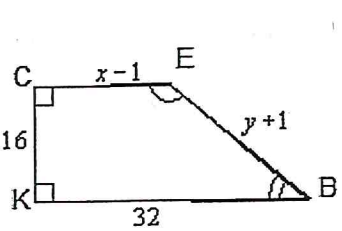
Corresponding ∠'s are ≅ + corresponding sides are proportional

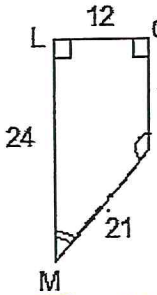
$\frac{5}{10} = \frac{2}{4} = \frac{3}{6} = \frac{9}{18} = \frac{1}{2}$

Quad ABCD ~ Quad 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.





$\frac{32}{24} = \frac{4}{3}$ ✓ $\quad \frac{16}{12} = \frac{4}{3}$ ✓ $\quad \frac{9-1}{6} = \frac{8}{6} = \frac{4}{3}$ ✓ $\quad \frac{27+1}{21} = \frac{28}{21} = \frac{4}{3}$ ✓

Trapezoid KCEB ~ Trapezoid LOJM

$\frac{32}{24} = \frac{x-1}{6}$ $\quad \frac{4}{3} = \frac{x-1}{6}$ $\quad 24 = 3(x-1)$

$x - 1 = 8$

$x = 9$

$\frac{32}{24} = \frac{y+1}{21}$ $\quad \frac{4}{3} = \frac{y+1}{21}$ $\quad 84 = 3(y+1)$

$y + 1 = 28$

$y = 27$