

Chapter 11 Similarity

UYAS: Proportions:

2 equivalent Ratios (fractions)

$$\frac{4}{3} = \frac{x}{27}$$

Scale factor of 9
Cross multiply

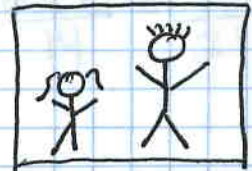
$$x = 36$$

$$x = 4 \cdot 9$$

Chp. 11 Similarity

In a photograph, Dan is 2.5 inches tall.
His sister Darla is 1.5 inches tall.

Dan's actual height is 70".
How tall is Darla?



Dan

IRL

Photo

$$\frac{70''}{x} = \frac{2.5''}{1.5''}$$

Darla

align
vertically &
horizontally

$$\frac{2.5x}{2.5} = \frac{105}{2.5}$$

$$x = 42''$$

Darla is 42" tall.

Proportions:

more difficult proportions follow the same rules, but require more Algebra.

USE PARENTHESES!!!!

$$\frac{(3x-13)}{(x+40)} = \frac{23}{10}$$

$$10(3x-13) = 23(x+40)$$

$$30x - 130 = 23x + 920$$

+130

+130

$$\begin{array}{r} 30x \\ -23x \\ \hline \end{array} = \begin{array}{r} 23x + 1050 \\ -23x \\ \hline \end{array}$$

You try: $\frac{7x}{7} = \frac{1050}{7}$ $x = 150$

① $\frac{x}{70} = \frac{3}{10}$

② $\frac{3x}{4} = \frac{15}{10}$

③ $\frac{2x-2}{14} = \frac{15}{21}$

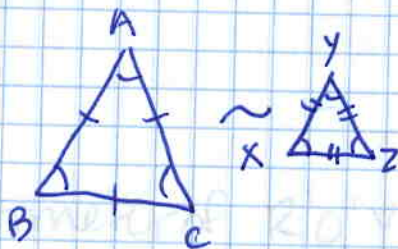
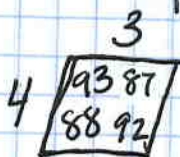
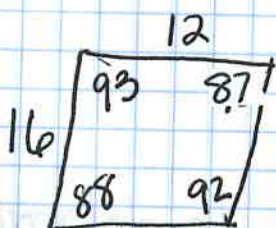
11.1 Similarity

Review: When are polygons congruent?

- equal corresponding sides \cong
- equal corresponding angles \cong

Similarity: \sim "is similar to..."

- + Similar polygons have equal angles
- + Similar polygons have proportional sides (multiplied by a scale factor)



SPIDER \sim HNYCMB

Find \overline{NY} , \overline{YC} , \overline{CM} and \overline{MB}

