

7-1 Proportions

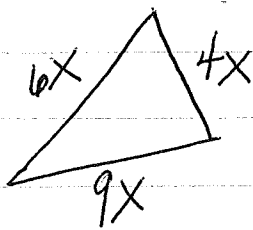
Ratio - a comparison of two quantities.

$$\frac{a}{b} \text{ or } a:b$$

ex: cooking 1 part oil : 2 parts water

ex: In a Δ , the ratio of the sides of a Δ is 4:6:9 and its perimeter is 190 inches. Find the length of the sides.

outer distance around figure



$$P = 190 \text{ in.}$$

$$4(10) = 40 \text{ in}$$

$$6(10) = 60 \text{ in}$$

$$9(10) = 90 \text{ in}$$

$$4x + 6x + 9x = 190$$

$$\frac{19x}{19} = \frac{190}{19}$$

$$x = 10$$

$$\text{Angles} = 2:3:4$$

$$2x + 3x + 4x = 180$$

Proportion - an equation stating that two ratios are equal.

$$2:3 = 6:9$$

↑ means ↑
↑ extremes ↑

$$\frac{2}{3} = \frac{6}{9}$$

ex: $\frac{3}{5} = \frac{x}{75}$

1] A twinjet airplane has a length of 78 meters and a wingspan of 90 meters. A toy model is made in proportion to the real plane. If the wingspan of the model is 36 cm, what is the length of the toy?

$$\frac{\text{plane's length (m)}}{\text{plane's wingspan (m)}} = \frac{\text{toy's length (cm)}}{\text{toy's wingspan (cm)}}$$

$$\frac{78\text{m}}{90\text{m}} = \frac{X\text{cm}}{36\text{cm}}$$

$$90x = 78(36)$$

$$90x = 2808$$

$$\frac{90x}{90} = \frac{2808}{90}$$

$$x = \boxed{31.2\text{ cm}}$$

HW: p. 383-384

Q# 8-22 evens only