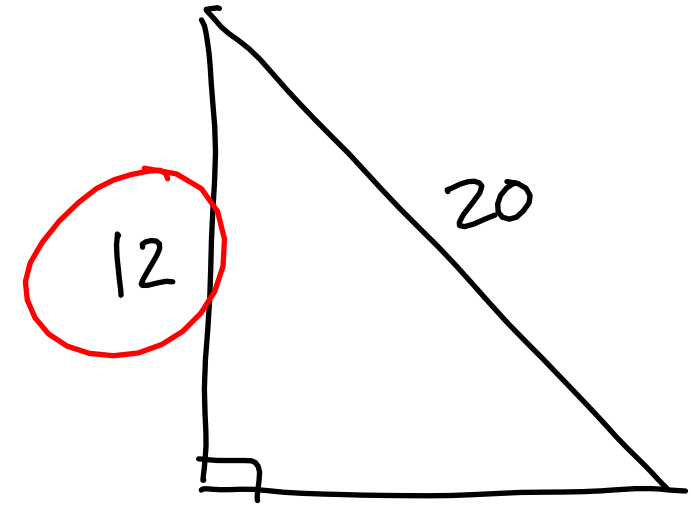
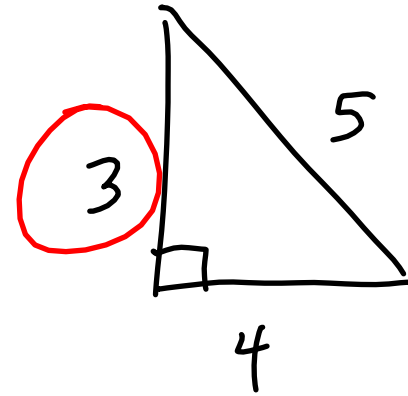
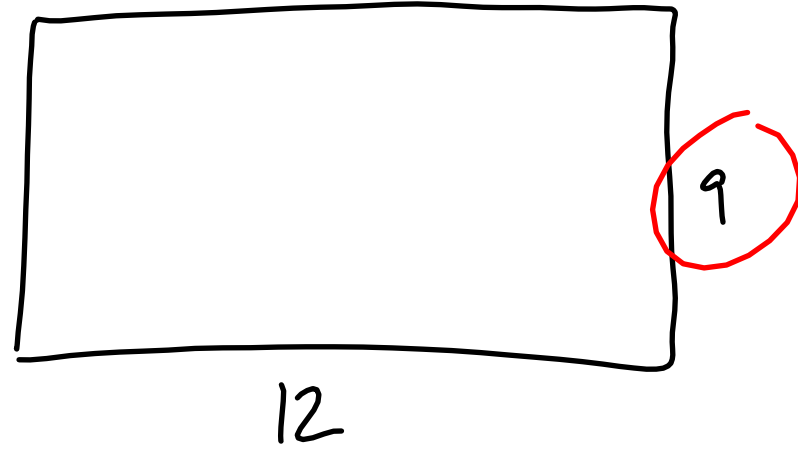
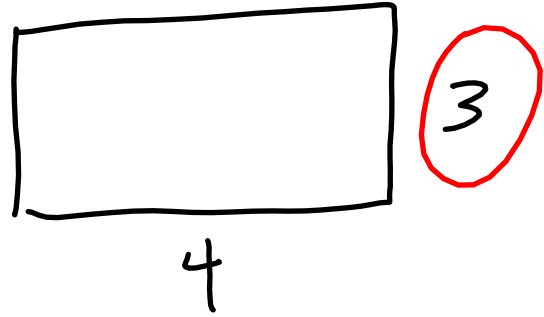


Perimeter/Area of Similar Figures



$$P = 14$$

$$A = 12$$

$$P = 42$$

$$A = 108$$

$$P = 12$$

$$A = 6$$

$$P = 48$$

$$A = 96$$

Ratio of Sides

Ratio of Perimeters

Ratio of Areas

Ratio of Sides

R of P

R of A

$$\frac{3}{9} = \frac{1}{3}$$

$$\frac{14}{42} = \frac{1}{3}$$

$$\frac{12}{108} = \frac{1}{9} = \frac{1^2}{3^2}$$

$$\frac{3}{12} = \frac{1}{4}$$

$$\frac{12}{48} = \frac{1}{4}$$

$$\frac{6}{96} = \frac{1}{16} = \frac{1^2}{4^2}$$

For similar figures w/ sides in ratio of $\frac{a}{b}$

↳ Ratio of Perimeters = $\frac{a}{b}$

↳ Ratio of Areas = $\frac{a^2}{b^2}$

EX → Hexagon A → side = 3 cm
Hexagon B → side = 8 cm

$$\begin{array}{l|l} \text{R of P} & \text{R of A} \\ \hline \frac{3}{8} & \frac{3^2}{8^2} = \frac{9}{64} \end{array}$$

EX → Circle A → Area = $16\pi \text{ ft}^2$
Circle B → Area = $81\pi \text{ ft}^2$

$$\begin{array}{l|l} \text{Ratio of Area} & \text{R of P} \\ \hline \frac{16\pi}{81\pi} = \frac{16}{81} & \frac{\sqrt{16}}{\sqrt{81}} = \frac{4}{9} \end{array}$$

EX → Pentagon A → Perimeter = 50 in.
Pentagon B → Perimeter = 125 in.

$$\begin{array}{l|l} \text{R of P} & \text{R of A} \\ \hline \frac{50}{125} = \frac{2}{5} & \frac{2^2}{5^2} = \frac{4}{25} \end{array}$$

EX → Dodecagon A → Area = 121 yd^2
Dodecagon B → Area = 64 yd^2

$$\begin{array}{l|l} \text{Ratio of Area} & \text{R of P} \\ \hline \frac{121}{64} & \frac{\sqrt{121}}{\sqrt{64}} = \frac{11}{8} \end{array}$$

EX → Ratio of 2 shapes' sides is $\frac{4}{3}$. If the area of larger shape is 48 in^2 , what is the area of the smaller shape?

Ratio of A

$$\frac{4^2}{3^2} = \frac{16}{9}$$

$$\frac{16}{9} \times \frac{48}{x}$$

$$\frac{16x}{16} = \frac{432}{16}$$

$$x = 27$$

EX → Ratio of 2 shapes' sides is $\frac{2}{7}$. If the area of the smaller shape is 16 cm^2 , what is the area of the larger shape?

Ratio of A

$$\frac{2^2}{7^2} = \frac{4}{49}$$

$$\frac{4}{49} = \frac{16}{x}$$

$$\frac{4x}{4} = \frac{784}{4}$$

$$x = 196$$

HW: p. 638 → 10-30 even, 40, 52-54, 61