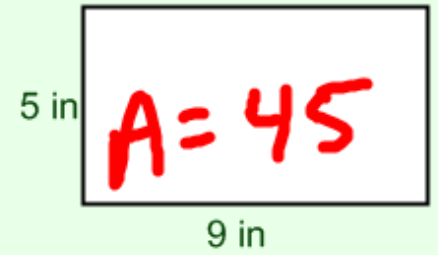
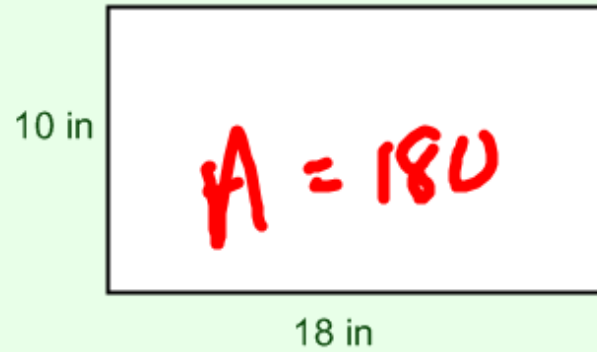
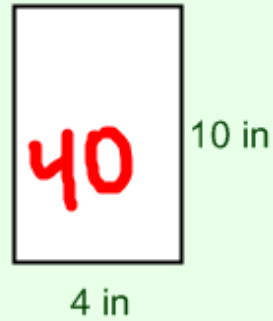
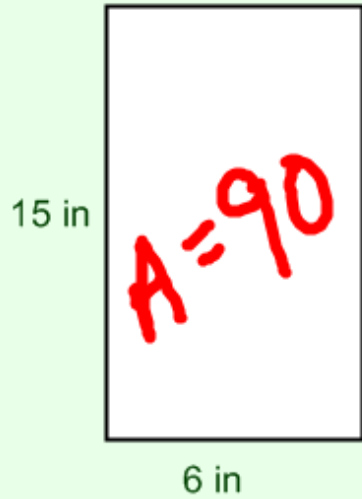


# Areas of similar shapes



You will be able to find areas of similar figures by using scale factors.

You will be able to find scale factors or missing measures given the areas of similar figures



S. F. Sides

$$\frac{15}{10}$$

$$\frac{6}{4}$$

$$\left(\frac{3}{2}\right)^2$$

S. F Areas

$$\frac{90}{40}$$

$$= \frac{9}{4}$$

S.ides

$$\frac{10}{5}$$

$$\left(\frac{2}{1}\right)^2$$

Area

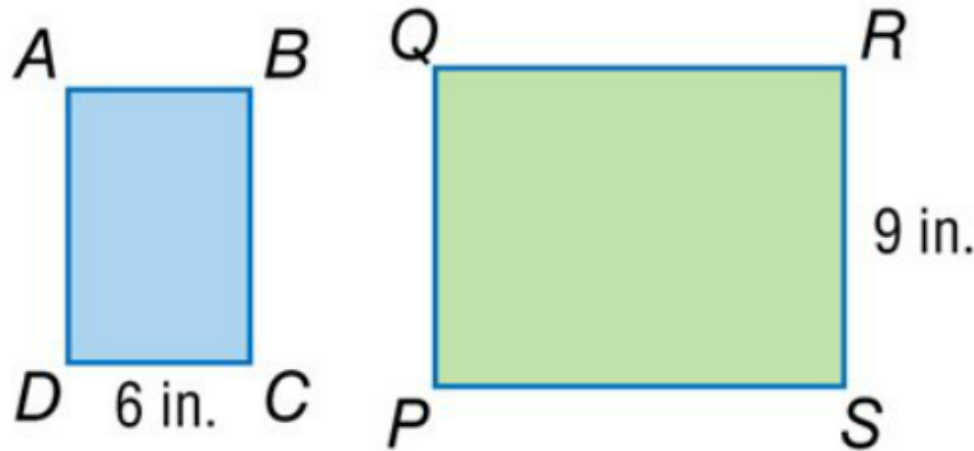
$$\frac{180}{45}$$

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

## Areas of Similar Shapes

$$\text{Sides} \qquad \text{Area}$$
$$\left( \frac{\quad}{\quad} \right)^2 = \frac{\quad}{\quad}$$

If  $ABCD \sim PQRS$  and the area of  $ABCD$  is 48 square inches, find the area of  $PQRS$ .



$$\left(\frac{\text{Sides}}{6}\right)^2 = \frac{\text{Area}}{48}$$

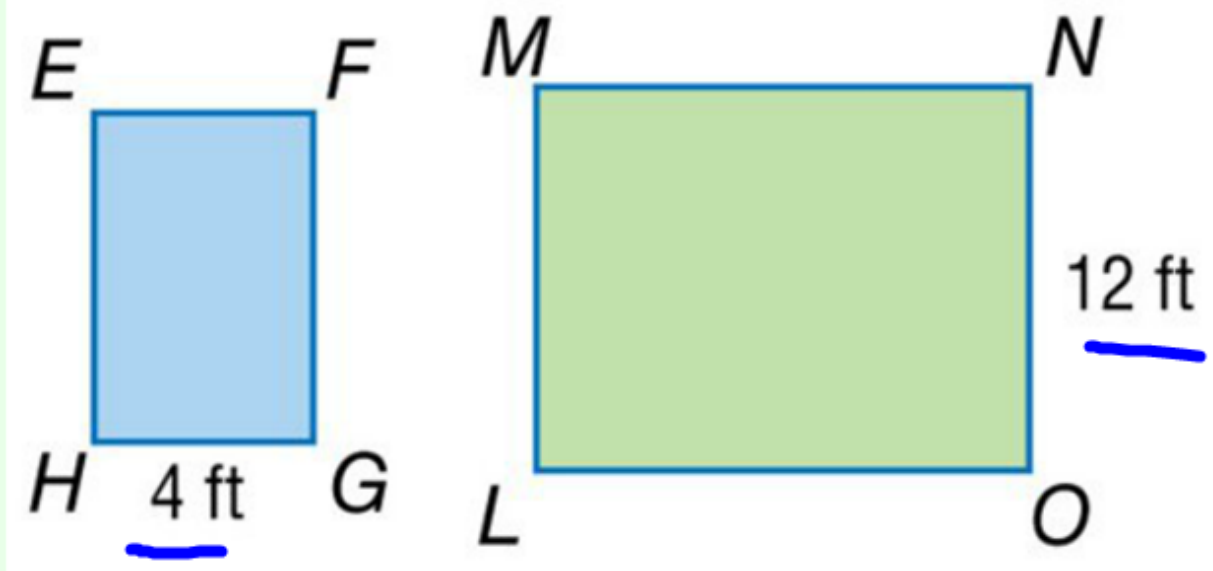
$$\left(\frac{2}{3}\right)^2 = \frac{48}{X}$$

$$\frac{4}{9} = \frac{48}{X}$$

$$\frac{4X}{4} = \frac{432}{4}$$

$$X = 108 \text{ in}^2$$

If  $EFGH \sim LMNO$  and the area of  $EFGH$  is 40 square inches, find the area of  $LMNO$ .

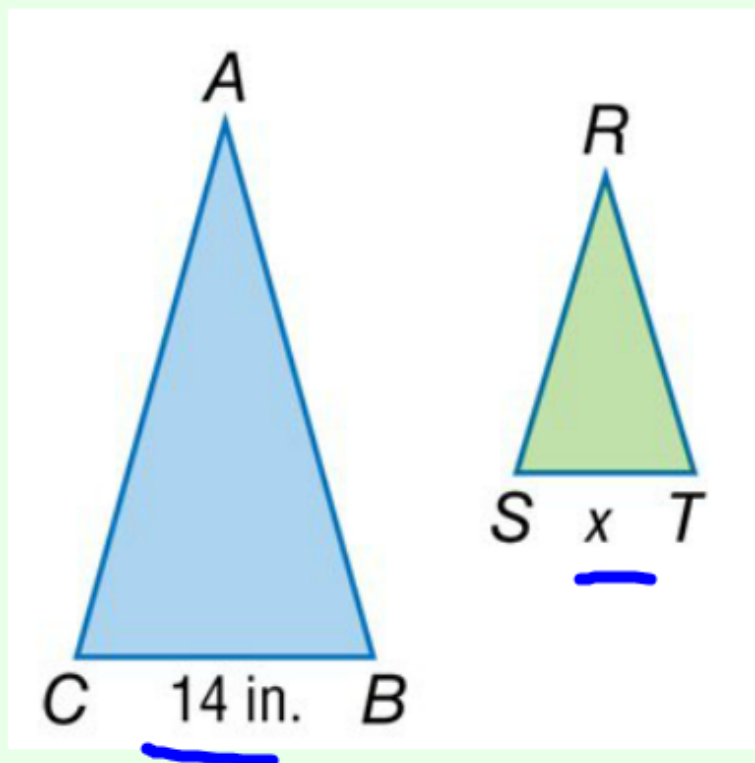


$$\left(\frac{4}{12}\right)^2 = \frac{40}{x}$$

$$\left(\frac{1}{3}\right)^2 = \frac{40}{x}$$
$$\frac{1}{9} = \frac{40}{x}$$

$$x = 360\text{ ft}^2$$

The area of  $\triangle ABC$  is 98 square inches. The area of  $\triangle RTS$  is 50 square inches. If  $\triangle ABC \sim \triangle RTS$ , find the scale factor from  $\triangle ABC$  to  $\triangle RTS$  and the value of  $x$ .



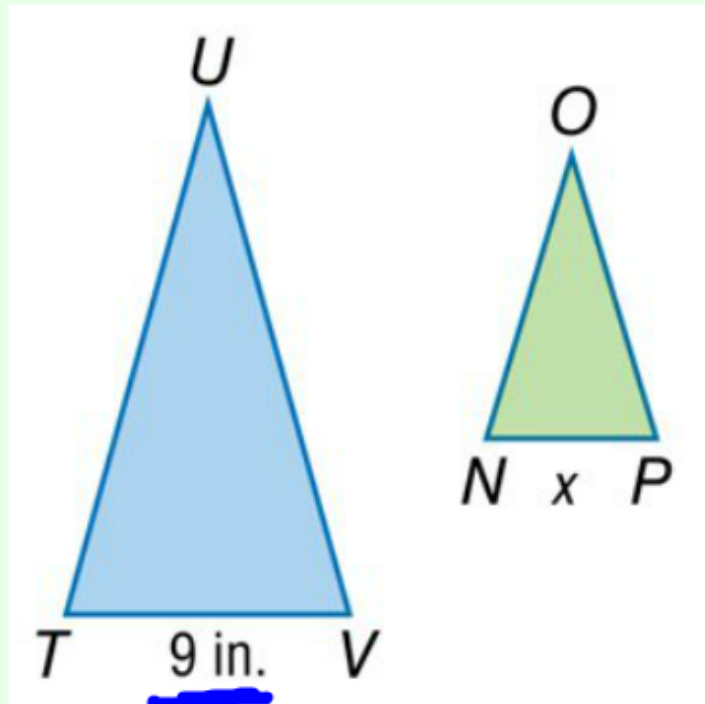
$$\begin{array}{cc} \text{Sides} & \text{Area} \\ \left(\frac{14}{x}\right)^2 & = \frac{98}{50} \end{array}$$

$$\frac{196}{x^2} = \frac{49}{25}$$

$$\frac{49x^2}{49} = \frac{4900}{49} \quad x^2 = 100$$

$$x = 10 \text{ in}$$

The area of  $\triangle TUV$  is 72 square inches. The area of  $\triangle NOP$  is 32 square inches. If  $\triangle TUV \sim \triangle NOP$ , use the scale factor from  $\triangle TUV$  to  $\triangle NOP$  to find the value of  $x$ .



$$\left(\frac{9}{x}\right)^2 = \frac{72}{32}$$

$$\frac{81}{x^2} = \frac{9}{4}$$

$$\frac{9x^2}{9} = \frac{324}{9}$$

$$x^2 = 36$$
$$x = 6$$