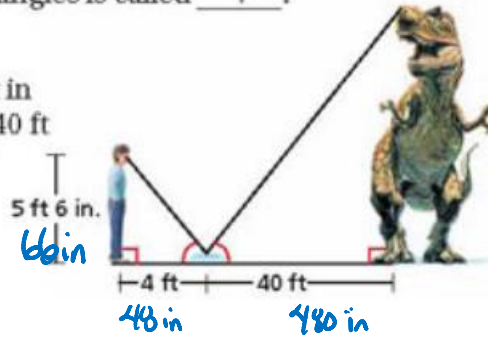


**Vocabulary** Finding distances using similar triangles is called indirect measurement or scale drawing.

**Measurement** To find the height of a dinosaur in a museum, Amir placed a mirror on the ground 40 ft from its base. Then he stepped back 4 ft so that he could see the top of the dinosaur in the mirror. Amir's eyes were approximately 5 ft 6 in. above the ground. What is the height of the dinosaur?



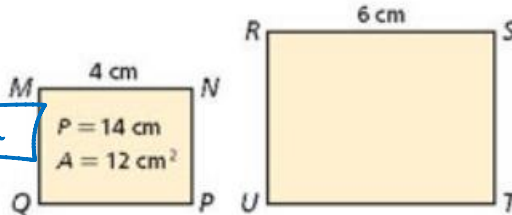
$$\frac{66}{x} = \frac{48}{480}$$

$$31680 = 48x$$

$$x = 660 \text{ in or } 55 \text{ ft}$$

Given: rectangle  $MNPQ \sim$  rectangle  $RSTU$

10. Find the perimeter of rectangle  $RSTU$ .  $\frac{4}{6} = \frac{14}{x}$   $4x = 84$



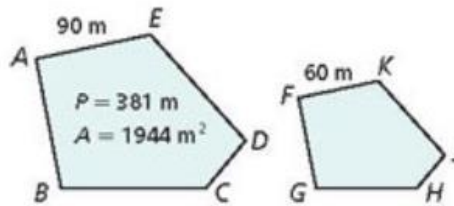
11. Find the area of rectangle  $RSTU$ .

$x = 21 \text{ cm}$

$(\frac{2}{3})^2$   $\frac{1}{9} = \frac{12}{x}$   $4x = 108$   $x = 27 \text{ cm}^2$

Given that pentagon  $ABCDE \sim$  pentagon  $FGHJK$ , find each of the following.

18. perimeter of pentagon  $FGHJK$
19. area of pentagon  $FGHJK$



19)  $\frac{90}{60} = \frac{381}{x}$   $x = 254 \text{ m}$

$90x = 22860$

19)  $(\frac{3}{2})^2$   $\frac{9}{4} = \frac{1944}{x}$   $9x = 7776$   $x = 864 \text{ m}^2$

Given:  $\triangle ABC \sim \triangle DEF$

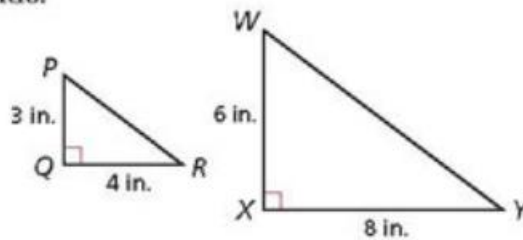
24. The ratio of the perimeter of  $\triangle ABC$  to the perimeter of  $\triangle DEF$  is  $\frac{8}{9}$ . What is the similarity ratio of  $\triangle ABC$  to  $\triangle DEF$ ?  $\frac{8}{9}$
25. The ratio of the area of  $\triangle ABC$  to the area of  $\triangle DEF$  is  $\frac{16}{25}$ . What is the similarity ratio of  $\triangle ABC$  to  $\triangle DEF$ ?  $\frac{4}{5}$
26. The ratio of the area of  $\triangle ABC$  to the area of  $\triangle DEF$  is  $\frac{4}{81}$ . What is the ratio of the perimeter of  $\triangle ABC$  to the perimeter of  $\triangle DEF$ ?  $\frac{2}{9}$

28. Given that  $\triangle PQR \sim \triangle WXY$ , find each ratio.

a.  $\frac{\text{perimeter of } \triangle PQR}{\text{perimeter of } \triangle WXY} = \frac{3}{6} = \frac{1}{2}$

b.  $\frac{\text{area of } \triangle PQR}{\text{area of } \triangle WXY} = \frac{1}{4}$

c. How does the result in part a compare with the result in part b?



part a is squared to get part b