## Chapter 5-8 Solving Proportions

1. Sophia is planning to run a 13.1-mile half marathon. She tells her plans to her European friend, who asks how many meters she will run. There are approximately 1609 meters in 1 mile. Write and solve a proportion that could be used to find the distance of the marathon in meters.

$$\frac{13.1}{x} = \frac{1}{1609}$$

$$x = 21{,}077.9 \text{ meters}$$
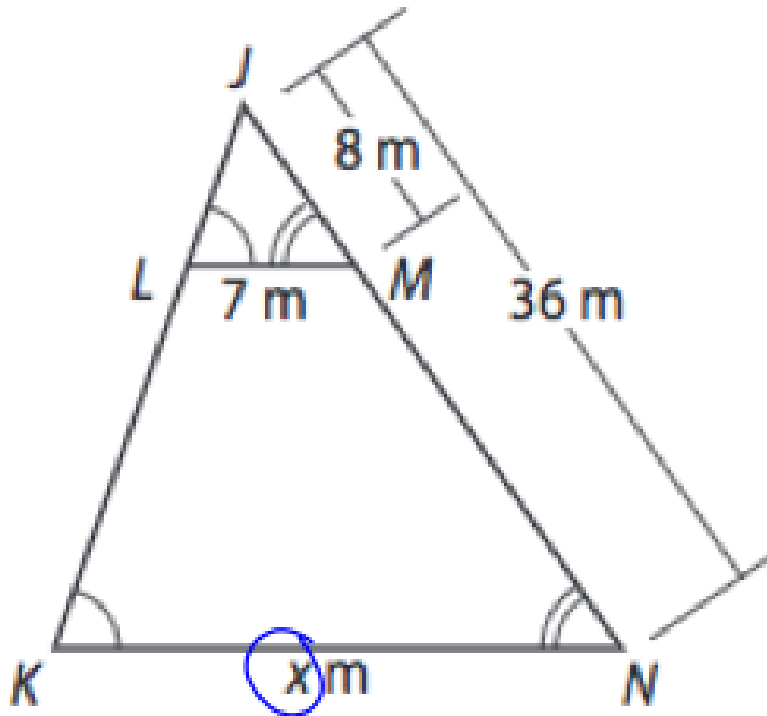
2.

How far is the tree from the flagpole?
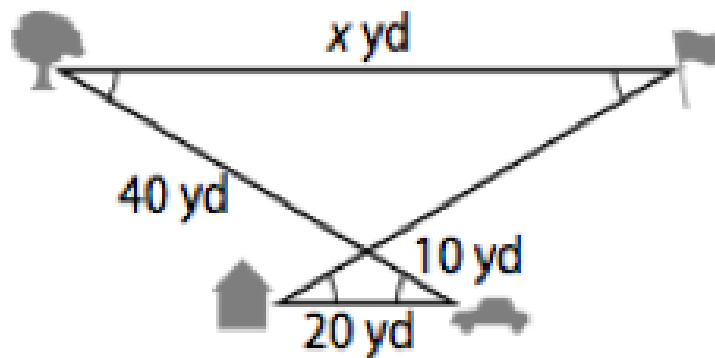
$$\frac{x}{40} = \frac{20}{10}$$

$$10x = 800$$

$$x = 80$$

$$\frac{x}{20} = \frac{40}{10}$$

$$10x = 800$$

$$x = 80$$

Chapter 5-9 Similar Figures
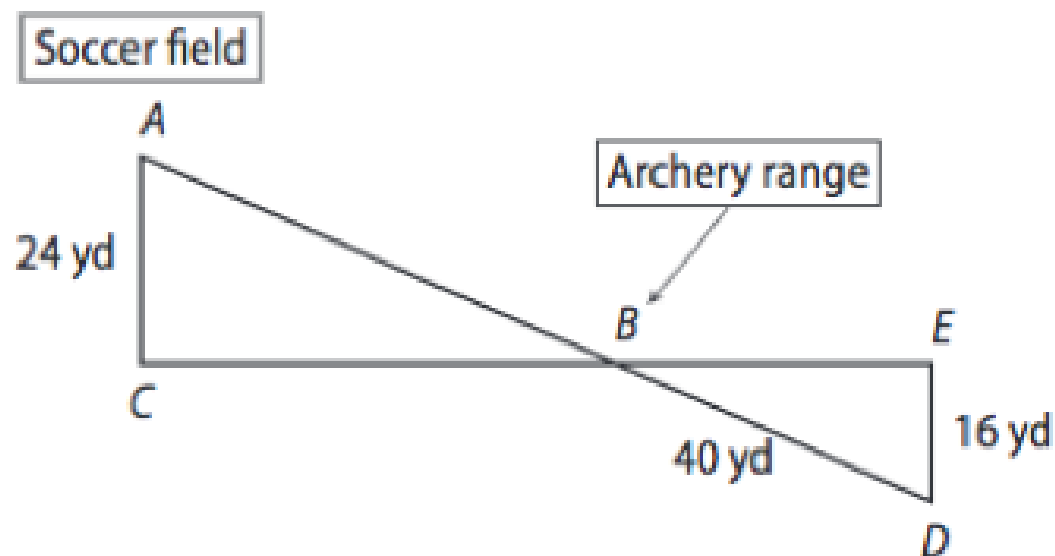
3. Solve for x

$$\frac{7}{8} = \frac{x}{36}$$

$$8x = 252$$

$$x = 31.5$$

$$\frac{8}{36} = \frac{7}{x}$$

$$8x = 252$$

$$x = 31.5$$

4. In the figure, $\triangle ABC \sim \triangle DBE$. How far is the archery range from the soccer field?

Soccer field

A

24 yd

Archery range

B

E

C

40 yd

16 yd

D

$$\frac{\overset{x}{AB}}{24} = \frac{40}{16}$$

$$\frac{24}{x} = \frac{16}{40}$$

$$\frac{24}{16} = \frac{x}{40}$$
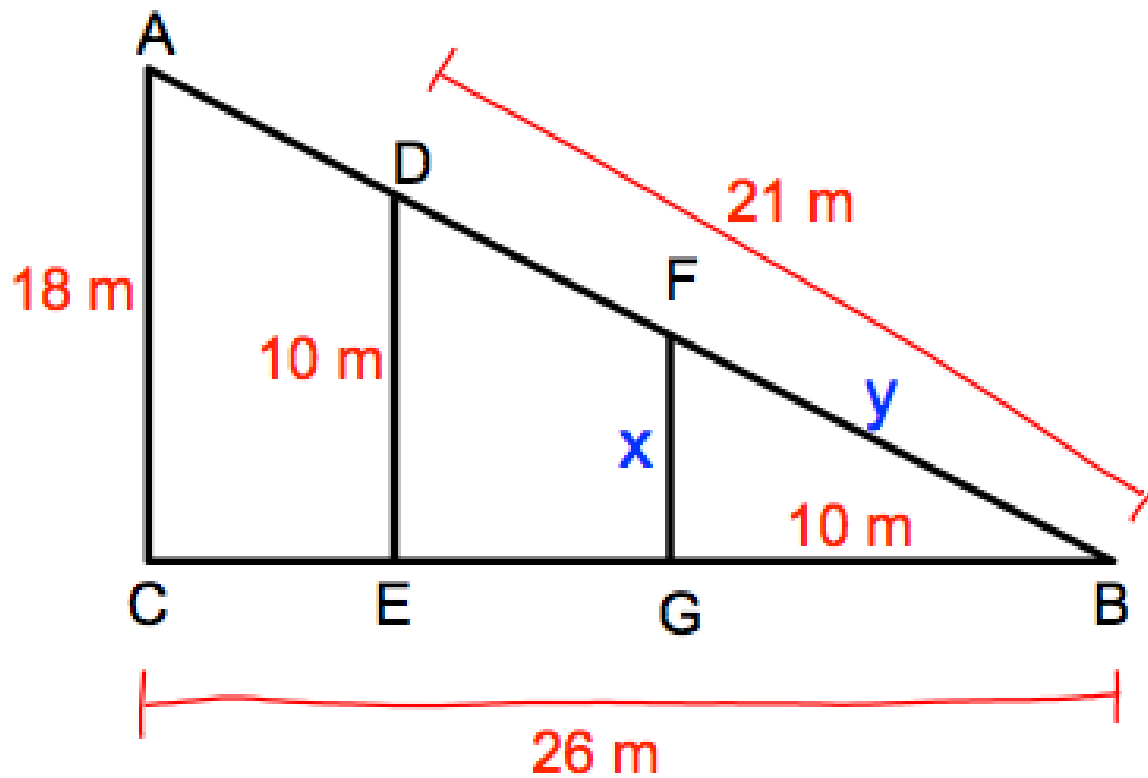
$$16x = 960$$

$$x = 60$$

Chapter 5-9 Similar Figures

5. Triangles ABC, DBE, and FBG are all similar. Find the length of x and y.

A

D

18 m

10 m

F

x

y

21 m

10 m

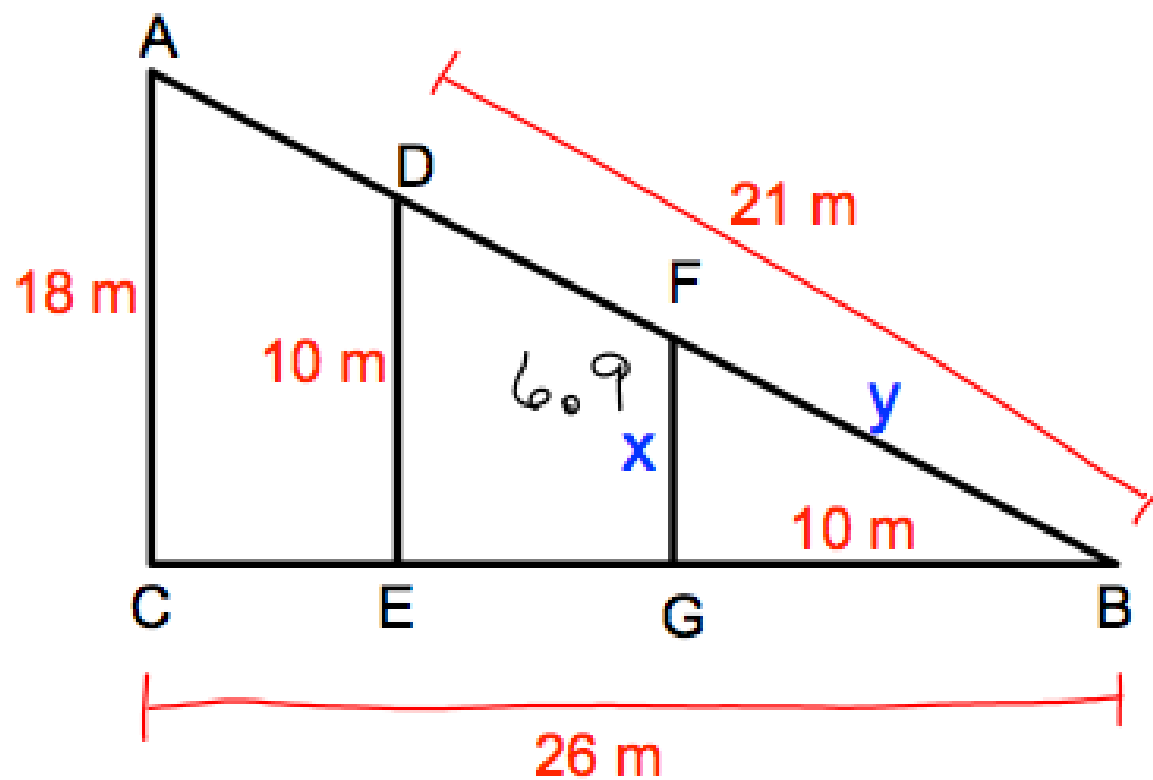C   E   G   B

26 m

$$\frac{18}{26} = \frac{x}{10}$$

$$\frac{x}{18} = \frac{10}{26}$$

$$26x = 180$$

$$x = 6.9$$

Chapter 5-9 Similar Figures
5. Triangles ABC, DBE, and FBG are all similar. Find the length of x and y.

A

D

21 m

F

18 m

10 m

6.9

y

x

10 m

C   E   G   B

26 m

$$\frac{Y}{6.9} = \frac{21}{10}$$

$$\frac{Y}{21} = \frac{6.9}{10}$$

$$10y = 144.9$$

$$y = 14.5$$

Chapter 5-10 Indirect Measurements

6. A 6-ft observer casts a 4-ft shadow at the same time a chimney casts a 238-foot shadow. How tall is the chimney?

$$\frac{6}{4} = \frac{x}{238}$$

$$4x = 1428$$

$$x = 357$$

$$\frac{x}{6} = \frac{238}{4}$$

$$4x = 1428$$

$$x = 357$$