

8-1 Practice

Geometric Mean

Find the geometric mean between each pair of numbers.

1. 8 and 12

$$\sqrt{96} \text{ or } 4\sqrt{6} \approx 9.8$$

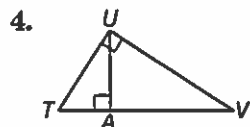
2. 3 and 15

$$\sqrt{45} \text{ or } 3\sqrt{5} \approx 6.7$$

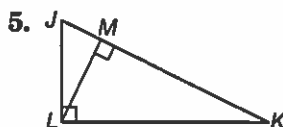
3. $\frac{4}{5}$ and 2

$$\sqrt{\frac{8}{5}} \text{ or } \frac{2\sqrt{10}}{5} \approx 1.3$$

Write a similarity statement identifying the three similar triangles in the figure.

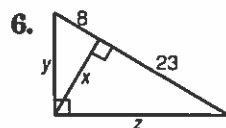


$$\triangle VUT \sim \triangle UAT \sim \triangle VAU$$



$$\triangle JLK \sim \triangle LMK \sim \triangle JML$$

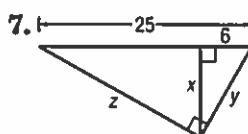
Find x , y , and z .



$$x = \sqrt{184} \text{ or } 2\sqrt{46} \approx 13.6;$$

$$y = \sqrt{248} \text{ or } 2\sqrt{62} \approx 15.7$$

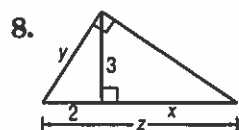
$$z = \sqrt{713} \approx 26.7$$



$$x = \sqrt{114} \approx 10.7;$$

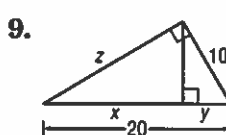
$$y = \sqrt{150} \text{ or } 5\sqrt{6} \approx 12.2$$

$$z = \sqrt{475} \text{ or } 5\sqrt{19} \approx 21.8$$



$$x = 4.5;$$

$$z = \sqrt{13} \approx 3.6; 6.5$$



$$x = 15;$$

$$y = 5;$$

$$z = \sqrt{300} \text{ or } 10\sqrt{3} \approx 17.3$$

10. **CIVIL** An airport, a factory, and a shopping center are at the vertices of a right triangle formed by three highways. The airport and factory are 6.0 miles apart. Their distances from the shopping center are 3.6 miles and 4.8 miles, respectively. A service road will be constructed from the shopping center to the highway that connects the airport and factory. What is the shortest possible length for the service road? Round to the nearest hundredth. **2.88 mi**

8-1 Word Problem Practice

Geometric Mean

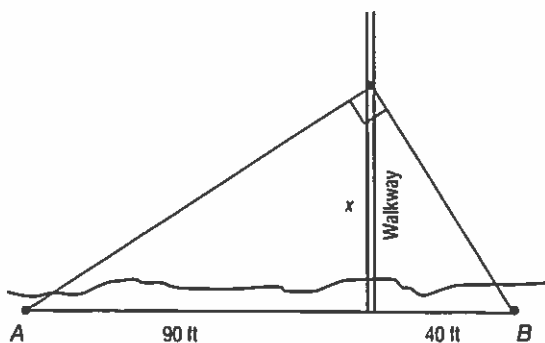
1. **SQUARES** Wilma has a rectangle of dimensions ℓ by w . She would like to replace it with a square that has the same area. What is the side length of the square with the same area as Wilma's rectangle?

$\sqrt{\ell w}$, the geometric mean of ℓ and w

2. **EQUALITY** Gretchen computed the geometric mean of two numbers. One of the numbers was 7 and the geometric mean turned out to be 7 as well. What was the other number?

7

3. **VIEWING ANGLE** A photographer wants to take a picture of a beach front. His camera has a viewing angle of 90° and he wants to make sure two palm trees located at points A and B in the figure are just inside the edges of the photograph.

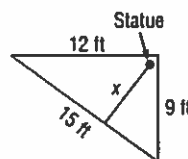


He walks out on a walkway that goes over the ocean to get the shot. If his camera has a viewing angle of 90° , at what distance down the walkway should he stop to take his photograph?

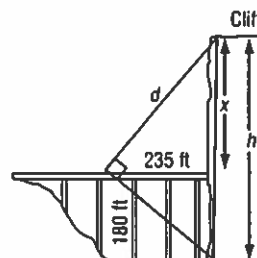
60 ft

4. **EXHIBITIONS** A museum has a famous statue on display. The curator places the statue in the corner of a rectangular room and builds a 15-foot-long railing in front of the statue. Use the information below to find how close visitors will be able to get to the statue.

7.2 ft



5. **CLIFFS** A bridge connects to a tunnel as shown in the figure. The bridge is 180 feet above the ground. At a distance of 235 feet along the bridge out of the tunnel, the angle to the base and summit of the cliff is a right angle.



- a. What is the height of the cliff? Round to the nearest whole number.

307 ft

- b. How high is the cliff from base to summit? Round to the nearest whole number.

487 ft

- c. What is the value of d ? Round to the nearest whole number.

387 ft

Lesson 8-1