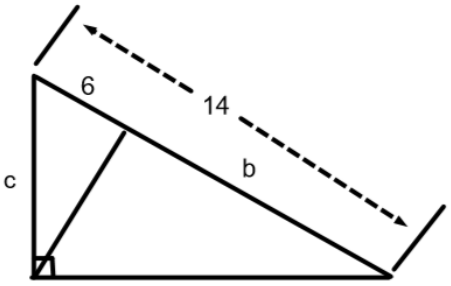
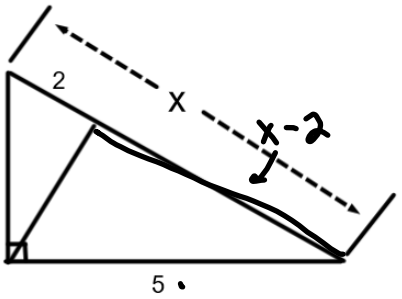
Find c and b



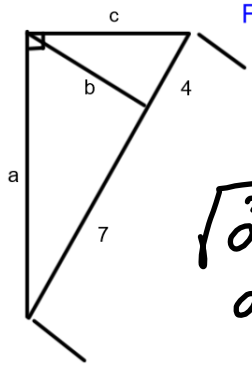

Find x




$$\frac{x-2}{5} = \frac{5}{x}$$

$$x^2 - 2x = 25$$

$$x^2 - 2x - 25 = 0$$




Find a, b, and c

$\frac{7}{a} = \frac{a}{11}$

$\sqrt{a^2} = \sqrt{77}$

$a = \sqrt{77}$

$\frac{4}{b} = \frac{b}{7}$

$\sqrt{b^2} = \sqrt{28}$

$b = \sqrt{4}\sqrt{7}$

$b = 2\sqrt{7}$

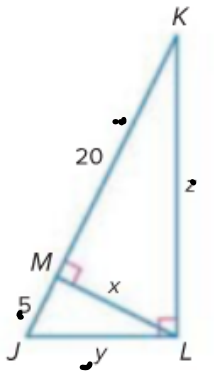
$\frac{4}{c} = \frac{c}{11}$

$\sqrt{c^2} = \sqrt{44}$

$c = \sqrt{4}\sqrt{11}$

$c = 2\sqrt{11}$

Find $x$, $y$, and $z$.




$\frac{5}{y} = \frac{y}{25}$

$y = \sqrt{125}$

$\sqrt{25}\sqrt{5}$

$5\sqrt{5}$

$\frac{20}{z} = \frac{z}{25}$

$z = \sqrt{500}$

$= \sqrt{100}\sqrt{5}$

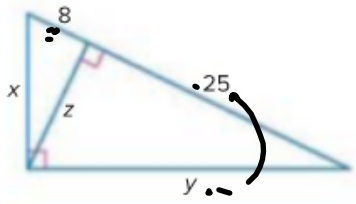
$z = 10\sqrt{5}$

$\frac{5}{x} = \frac{x}{20}$

$x = 10$

Find $x$, $y$, and $z$.

**3A.**




$\frac{8}{x} = \frac{x}{33}$

$x = \sqrt{264}$

$x = \sqrt{4}\sqrt{66}$

$2\sqrt{66}$

$\frac{25}{y} = \frac{y}{33}$

$y = \sqrt{825}$

$\sqrt{25}\sqrt{33}$

$y = 5\sqrt{33}$

$\frac{9}{z} = \frac{z}{25}$

$z = \sqrt{200}$

$\sqrt{100}\sqrt{2}$

$z = 10\sqrt{2}$

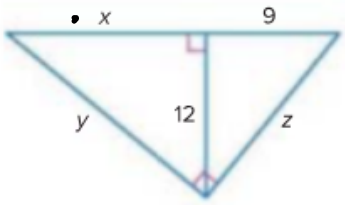
$5\sqrt{8}$

$5 \cdot \sqrt{4}\sqrt{2}$

$5 \cdot 2\sqrt{2}$

$10\sqrt{2}$

**3B.**




$\frac{16}{y} = \frac{y}{25}$

$y = \sqrt{400}$

$y = 20$

$\frac{x}{12} = \frac{12}{9}$

$144 = 9x$

$16 = x$

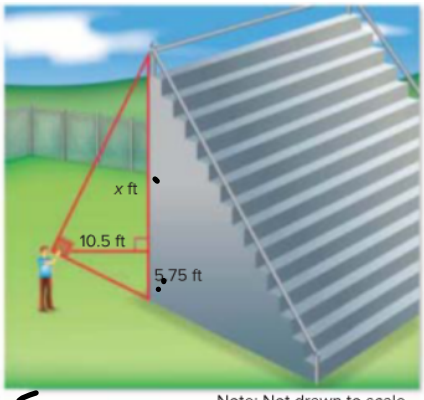
$\frac{9}{z} = \frac{z}{25}$

$z = \sqrt{225}$

$z = 15$

**ADVERTISING** Zach wants to order a banner that will hang over the side of his high school baseball stadium grandstand and reach the ground.

To find this height, he uses a cardboard square to line up the top and bottom of the grandstand. He measures his distance from the grandstand and from the ground to his eye level. Find the height of the grandstand to the nearest foot.



Note: Not drawn to scale.

$\frac{5.75}{10.5} = \frac{10.5}{x}$ $5.75x = 110.25$

$x = 19.2$ ft

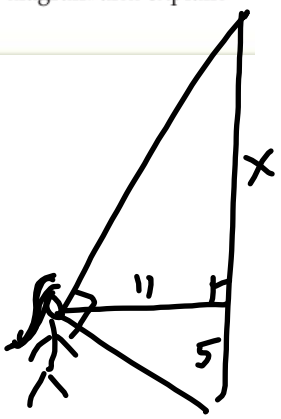
$+ 5.75$

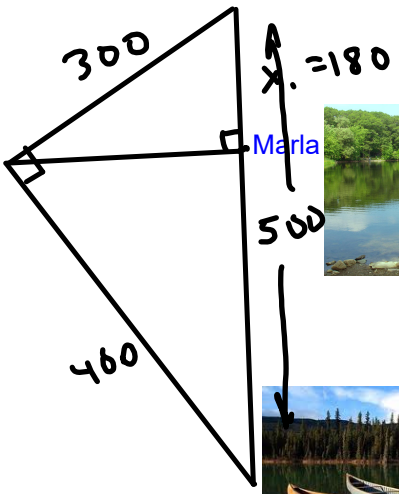
$24.95$

4. **SPORTS** A community center needs to estimate the cost of installing a rock climbing wall by estimating the height of the wall. Sue holds a book up to her eyes so that the top and bottom of the wall are in line with the bottom edge and binding of the cover. If her eye level is 5 feet above the ground and she stands 11 feet from the wall, how high is the wall? Draw a diagram and explain your reasoning.

$\frac{5}{11} = \frac{11}{x}$ $5x = 121$

$x = 24.2$






The 300 m path to the information center and the 400 m path to the canoe rental dock meet at a right angle at the parking lot. Marla walks straight from the parking lot to the lake as shown. How far is Marla from the information center?

$\frac{x}{300} = \frac{300}{500}$

$90000 = 500x$

$\frac{90000}{500} = \frac{500x}{500}$

$180 = x$

## Practice and Problem Solving

**Example 1** Find the geometric mean between each pair of numbers.

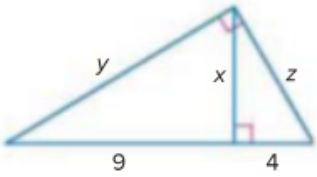
**8.** 81 and 4

**9** 25 and 16

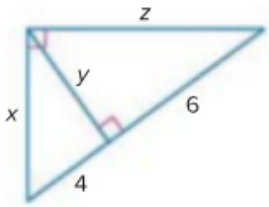
**10.** 20 and 25

Find $x$, $y$, and $z$.

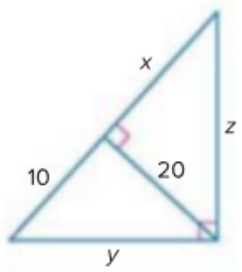
**18.**



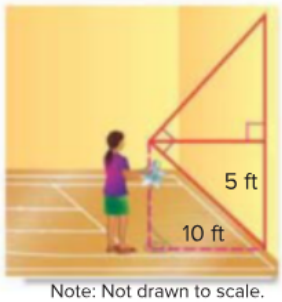

**20.**



**22.**

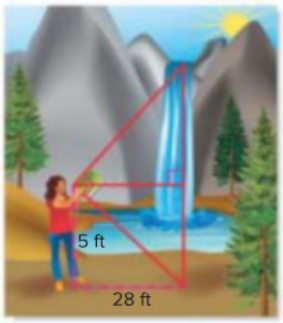



**24.** **MODELING** Evelina is hanging silver stars from the gym ceiling using string for the homecoming dance. She wants the ends of the strings where the stars will be attached to be 7 feet from the floor. Use the diagram to determine how long she should make the strings.



Note: Not drawn to scale.

**25.** **MODELING** Makayla is using a book to sight the top of a waterfall. Her eye level is 5 feet from the ground and she is a horizontal distance of 28 feet from the waterfall. Find the height of the waterfall to the nearest tenth of a foot.



Note: Not drawn to scale.