

7-1 Skills Practice

Geometric Mean

Find the geometric mean between each pair of numbers. State exact answers and answers to the nearest tenth.

1. 2 and 8

4

2. 9 and 36

18

3. 4 and 7

$\sqrt{28} \approx 5.3$

4. 5 and 10

$\sqrt{50} \approx 7.1$
 $5\sqrt{2}$

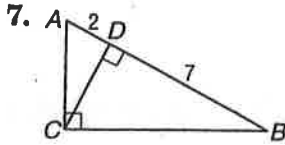
5. $2\sqrt{2}$ and $5\sqrt{2}$

$\sqrt{20} \approx 4.5$
 $2\sqrt{5}$

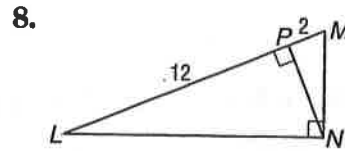
6. $3\sqrt{5}$ and $5\sqrt{5}$

$\sqrt{75} \approx 8.7$
 $5\sqrt{3}$

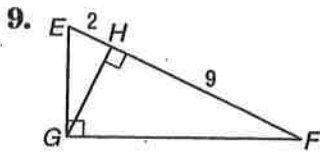
Find the measure of each altitude. State exact answers and answers to the nearest tenth.



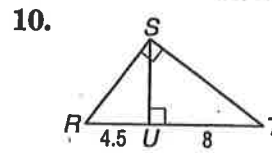
$\sqrt{14} \approx 3.7$



$\sqrt{24} \approx 4.9$
 $2\sqrt{6}$

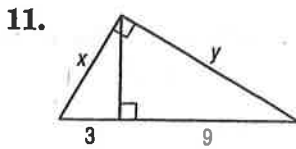


$\sqrt{18} \approx 4.2$
 $3\sqrt{2}$

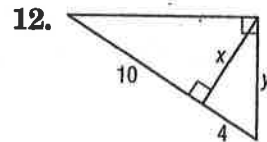


6

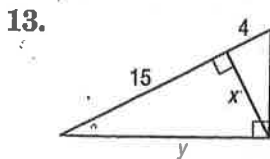
Find x and y .



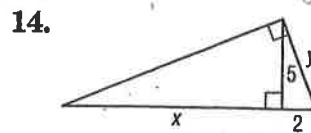
6; $\sqrt{108} \approx 10.4$
 $6\sqrt{3}$



$\sqrt{40} \approx 6.3$; $\sqrt{56} \approx 7.5$
 $2\sqrt{10}$ $2\sqrt{14}$



$\sqrt{60} \approx 7.7$, $\sqrt{85} \approx 9.2$
 $2\sqrt{15}$



12.5, $\sqrt{89} \approx 9.4$

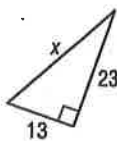
7-2

Practice

The Pythagorean Theorem and Its Converse

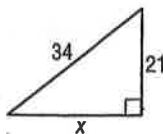
Find x .

1.



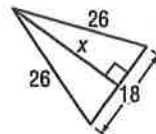
$\sqrt{169} \approx 26.4$

2.



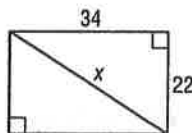
$\sqrt{715} \approx 26.7$

3.



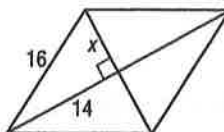
$\sqrt{595} \approx 24.4$

4.



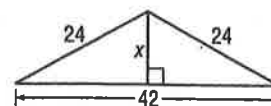
$\sqrt{1640} \approx 40.5$

5.



$\sqrt{60} \approx 7.7$

6.



$\sqrt{135} \approx 11.6$

Determine whether $\triangle GHI$ is a right triangle for the given vertices. Explain.

7. $G(2, 7), H(3, 6), I(-4, -1)$

yes $GH = \sqrt{2}$ $HI = \sqrt{98}$
 $IG = \sqrt{100}$

8. $G(-6, 2), H(1, 12), I(-2, 1)$

no $GH = \sqrt{149}$
 $HI = \sqrt{130}$
 $IG = \sqrt{17}$

9. $G(-2, 1), H(3, -1), I(-4, -4)$

yes $GH = \sqrt{29}$ $HI = \sqrt{58}$
 $IG = \sqrt{29}$

10. $G(-2, 4), H(4, 1), I(-1, -9)$

yes $GH = \sqrt{45}$
 $HI = \sqrt{125}$
 $IG = \sqrt{170}$

Determine whether each set of measures can be the measures of the sides of a right triangle. Then state whether they form a Pythagorean triple.

11. 9, 40, 41

yes, yes

12. 7, 28, 29

no, no

13. 24, 32, 40

yes, yes

14. $\frac{9}{5}, \frac{12}{5}, 3$

yes, no

15. $\frac{1}{3}, \frac{2\sqrt{2}}{3}, 1$

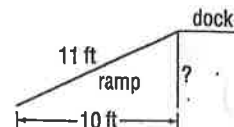
yes, no

16. $\frac{\sqrt{4}}{7}, \frac{2\sqrt{3}}{7}, \frac{4}{7}$

yes, no

17. CONSTRUCTION The bottom end of a ramp at a warehouse is 10 feet from the base of the main dock and is 11 feet long. How high is the dock?

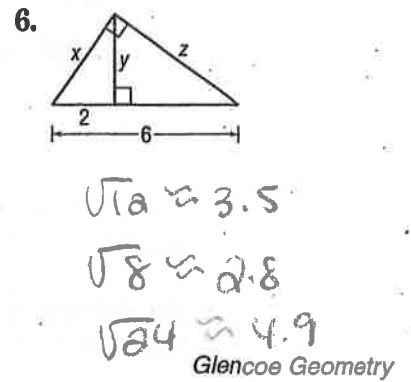
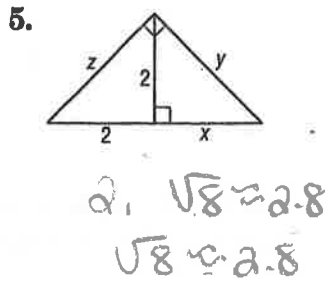
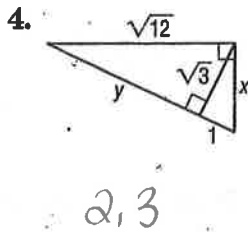
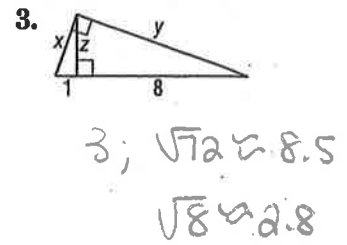
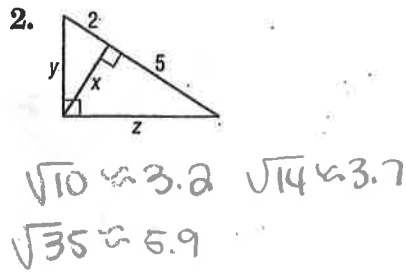
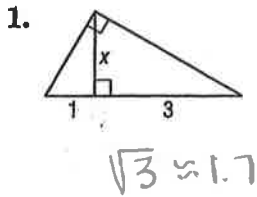
≈ 4.6 ft high



Exercises

Geometric Mean

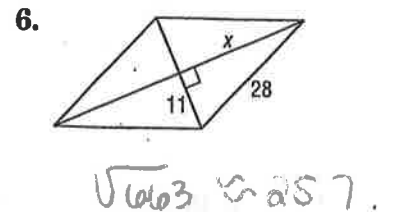
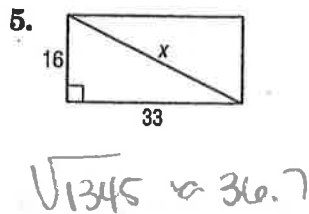
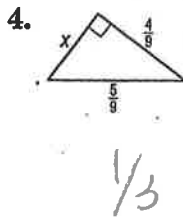
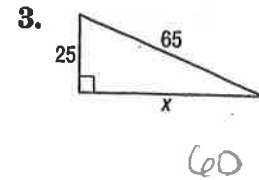
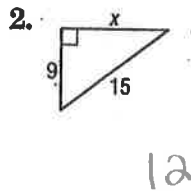
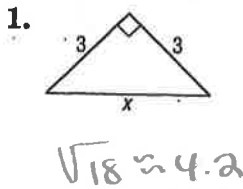
Find x , y , and z to the nearest tenth.



Exercises

Pythagorean Theorem

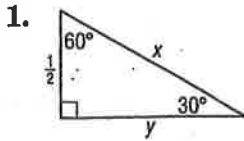
Find x .



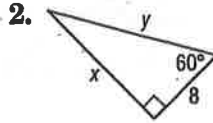
Exercises

Special Right Triangles

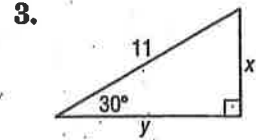
Find x and y .



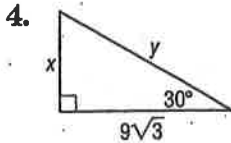
$1, \frac{1}{\sqrt{3}} \approx 0.9$



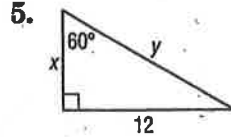
$8\sqrt{3} \approx 13.9$
16



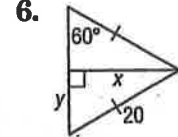
$5.5, 5.5\sqrt{3}$



9, 18



$4\sqrt{3} \approx 6.9, 8\sqrt{3} \approx 13.9$



$10\sqrt{3}, 10$

7. The perimeter of an equilateral triangle is 32 centimeters. Find the length of an altitude of the triangle to the nearest tenth of a centimeter.

9.2 cm

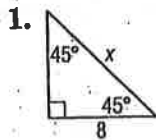
8. An altitude of an equilateral triangle is 8.3 meters. Find the perimeter of the triangle to the nearest tenth of a meter.

28.8 cm

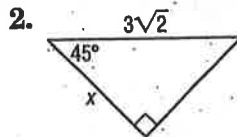
Exercises

Special Right Triangles

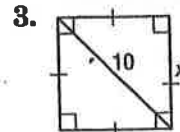
Find x .



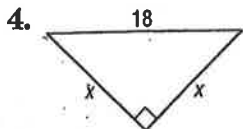
$8\sqrt{2} \approx 11.3$



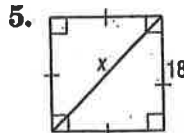
3



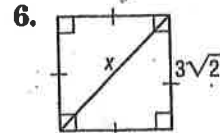
$5\sqrt{2} \approx 7.1$



$9\sqrt{2} \approx 12.7$



$18\sqrt{2} \approx 25.5$



4

7. Find the perimeter of a square with diagonal 12 centimeters.

$24\sqrt{2} \approx 33.9$ cm

8. Find the diagonal of a square with perimeter 20 inches.

$5\sqrt{2} \approx 7.1$ in

9. Find the diagonal of a square with perimeter 28 meters.

$7\sqrt{2} \approx 9.9$ m