

key

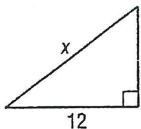
8-2 Skills Practice

$a^2 + b^2 = c^2$

The Pythagorean Theorem and Its Converse

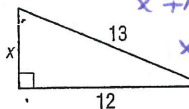
Find x.

1.



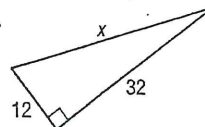
$9^2 + 12^2 = x^2$
 $81 + 144 = x^2$
 $225 = x^2$
 $\sqrt{225} = \sqrt{x^2}$
 $15 = x$

2.



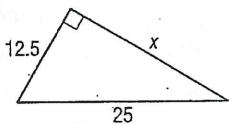
$x^2 + 12^2 = 13^2$
 $x^2 + 144 = 169$
 $x^2 = 25$
 $\sqrt{x^2} = \sqrt{25}$
 $x = 5$

3.



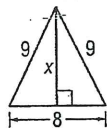
$12^2 + 32^2 = x^2$
 $1168 = x^2$
 $34.176 = x$

4.



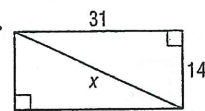
$12.5^2 + x^2 = 25^2$
 $156.25 + x^2 = 625$
 $x^2 = 468.75$
 $\sqrt{x^2} = \sqrt{468.75}$
 $x = 21.651$

5.



$x^2 + 8^2 = 9^2$
 $x^2 + 64 = 81$
 $x^2 = 17$
 $x = \sqrt{17} \approx 4.123$

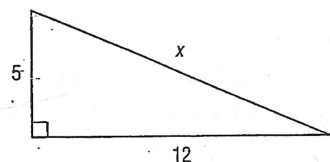
6.



$14^2 + 31^2 = x^2$
 $1157 = x^2$
 $x = 34.015$

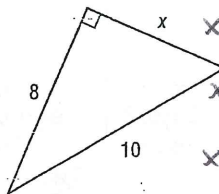
Use a Pythagorean Triple to find x.

7.



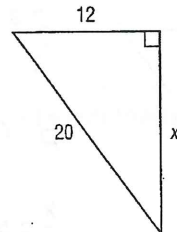
5, 12, 13
 $x = 13$

8.



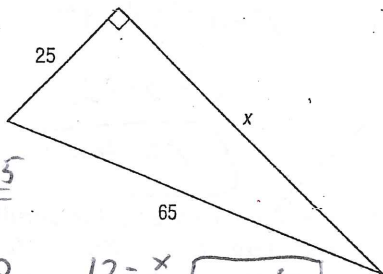
3, 4, 5
 $x, 8, 10$
 $x, 8, 10$
 $x, 4, 5$
 $x = 3 \cdot 2$
 $x = 6$

9.



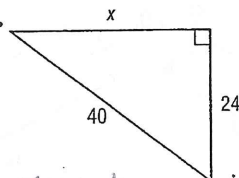
$x, \frac{12}{4}, \frac{20}{4}$
 $x, 3, 5$
 $x = 16$

10.



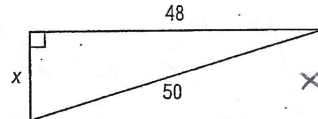
$x, \frac{25}{5}, \frac{65}{5}$
 $x, 5, 13$
 $12 = \frac{x}{5}$
 $x = 60$

11.



$x, \frac{24}{8}, \frac{40}{8}$
 $x, 3, 5$
 $4 = \frac{x}{8}$
 $x = 32$

12.



$x^2 + 48^2 = 50^2$
 $x^2 = 196$
 $x = 14$

Determine whether each set of numbers can be measure of the sides of a triangle. If so, classify the triangle as acute, obtuse, or right. Justify your answer.

13. 7, 24, 25

$25^2 = 7^2 + 24^2$

Right

14. 8, 14, 20

$20^2 > 8^2 + 14^2$
 obtuse

15. 12.5, 13, 26

$12.5 + 13 < 26$
 Not a triangle

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

$(3\sqrt{2})^2 < (\sqrt{7})^2 + 4^2$
 acute

17. 20, 21, 29

$29^2 < 20^2 + 21^2$
 acute

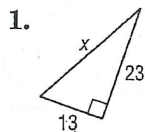
18. 32, 35, 70

$32 + 35 < 70$
 Not a triangle

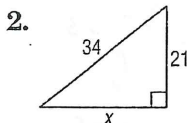
8-2 Practice

The Pythagorean Theorem and Its Converse

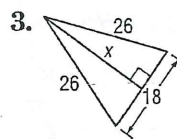
Find x .



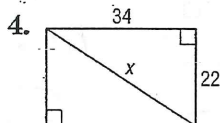
$$13^2 + 23^2 = x^2$$



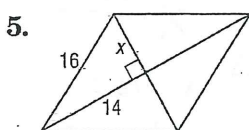
$$x^2 + 21^2 = 34^2$$



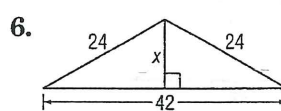
$$9^2 + x^2 = 26^2$$



$$x^2 = 22^2 + 34^2$$

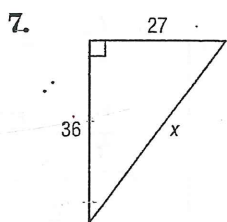


$$x^2 + 14^2 = 16^2$$



$$21^2 + x^2 = 24^2$$

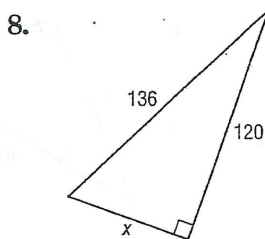
Use a Pythagorean Triple to find x .



$$\frac{27}{9}, \frac{36}{9}, \frac{x}{9}$$

3, 4, 5

$$\frac{x}{9} = \frac{5}{1} \quad \boxed{x = 45}$$



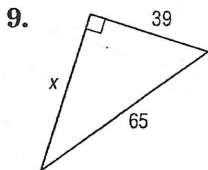
$$\frac{x}{8}, \frac{120}{8}, \frac{136}{8}$$

$$x^2 + 120^2 = 136^2$$

$$x^2 = 4096$$

$$\boxed{x = 64}$$

15, 8, 17



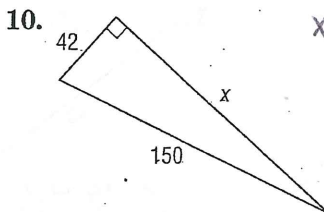
$$x^2 + 39^2 = 65^2$$

$$x^2 = 2704$$

$$\boxed{x = 52}$$

$x, 39, 65$

39, 52, 65



$$x^2 + 42^2 = 150^2$$

$$x^2 = 20736$$

$$\boxed{x = 144}$$

$$\frac{42}{6}, \frac{x}{6}, \frac{150}{6}$$

$$7, \frac{x}{6}, 25$$

7, 24, 25

Determine whether each set of numbers can be measure of the sides of a triangle. If so, classify the triangle as *acute*, *obtuse*, or *right*. Justify your answer.

11. 10, 11, 20

$$20^2 > 10^2 + 11^2$$

obtuse

12. 12, 14, 49

$$12 + 14 < 49$$

Not a triangle

13. $5\sqrt{2}$, 10, 11

$$11^2 < 10^2 + (5\sqrt{2})^2$$

acute

14. 21.5, 24, 55.5

$$21.5 + 24 < 55.5$$

not a triangle

15. 30, 40, 50

$$50^2 = 30^2 + 40^2$$

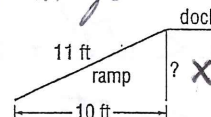
Right triangle

16. 65, 72, 97

$$97^2 = 65^2 + 72^2$$

Right triangle

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?



$$10^2 + x^2 = 11^2$$

$$\boxed{x = \sqrt{21} \approx 4.58}$$

$$x^2 = 21$$

acute
obtuse

10, 11, 20
tape on board