

G.SRT.C.8: Pythagorean Theorem 2b

- 1 If the length of the legs of a right triangle are 5 and 7, what is the length of the hypotenuse?
- 2 The legs of an isosceles right triangle each measure 10 inches. What is the length of the hypotenuse of this triangle, to the *nearest tenth of an inch*?
- 3 The length of the hypotenuse of a right triangle is 34 inches and the length of one of its legs is 16 inches. What is the length, in inches, of the other leg of this right triangle?
- 4 In triangle RST , angle R is a right angle. If $TR = 6$ and $TS = 8$, what is the length of RS ?
- 5 In right triangle ABC , $m\angle C = 90$, $AC = 7$, and $AB = 13$. What is the length of BC ?
- 6 The longest side of a right triangle is 25. If one of the other sides is 5, which measure is the length of the missing side?
- 7 A woman has a ladder that is 13 feet long. If she sets the base of the ladder on level ground 5 feet from the side of a house, how many feet above the ground will the top of the ladder be when it rests against the house?
- 8 A cable 20 feet long connects the top of a flagpole to a point on the ground that is 16 feet from the base of the pole. How tall is the flagpole?
- 9 An equilateral triangle has sides of length 20. To the *nearest tenth*, what is the height of the equilateral triangle?
- 10 The length of one side of a square is 13 feet. What is the length, to the *nearest foot*, of a diagonal of the square?
- 11 The length and width of a rectangle are 48 inches and 40 inches. To the *nearest inch*, what is the length of its diagonal?
- 12 If the length of a rectangular television screen is 20 inches and its height is 15 inches, what is the length of its diagonal, in inches?
- 13 Linda is designing a circular piece of stained glass with a diameter of 7 inches. She is going to sketch a square inside the circular region. To the *nearest tenth of an inch*, the largest possible length of a side of the square is

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Answer Section

1 ANS:

$$\sqrt{74}$$

$$5^2 + 7^2 = c^2$$

$$74 = c^2$$

$$\sqrt{74} = c$$

REF: 010202a

2 ANS:

$$14.1$$

$$10^2 + 10^2 = c^2$$

$$c^2 = 200$$

$$c \approx 14.1$$

REF: 061102ia

3 ANS:

$$30$$

$$16^2 + b^2 = 34^2$$

$$b^2 = 900$$

$$b = 30$$

REF: 080809ia

4 ANS:

$$2\sqrt{7}$$

$$\sqrt{8^2 - 6^2} = \sqrt{28} = \sqrt{4}\sqrt{7} = 2\sqrt{7}$$

REF: 061329ia

5 ANS:

$$\sqrt{120}$$

$$\sqrt{13^2 - 7^2} = \sqrt{120}$$

REF: 081323ia

6 ANS:

$$10\sqrt{6}$$

$$\sqrt{25^2 - 5^2} = \sqrt{600} = 10\sqrt{6}$$

REF: 061624ia

7 ANS:

12

$$5^2 + b^2 = 13^2$$

$$b^2 = 144$$

$$b = 12$$

REF: 060115a

8 ANS:

12 ft

$$16^2 + b^2 = 20^2$$

$b^2 = 144$. 12, 16, 20 is a multiple of the 3, 4, 5 triangle.

$$b = 12$$

REF: 080707a

9 ANS:

17.3

$$\sqrt{20^2 - 10^2} \approx 17.3$$

REF: 081608geo

10 ANS:

18

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

$$338 = x^2$$

$$\sqrt{338} = x$$

$$18 \approx x$$

REF: 061223ia

11 ANS:

62

$$\sqrt{48^2 + 40^2} = \sqrt{2304 + 1600} = \sqrt{3904} \approx 62$$

REF: 011417ia

12 ANS:

25

$$15^2 + 20^2 = c^2$$

$625 = c^2$ 15, 20, 25 is a multiple of the 3, 4, 5 triangle.

$$25 = c$$

REF: 060710a

13 ANS:

4.9

$$s^2 + s^2 = 7^2$$

$$2s^2 = 49$$

$$s^2 = 24.5$$

$$s \approx 4.9$$

REF: 081511geo