

A.A.45: Pythagorean Theorem 4: Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides

- 1 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?
 - 1) 15
 - 2) 13.2
 - 3) 25
 - 4) 35
- 2 If the length of the legs of a right triangle are 5 and 7, what is the length of the hypotenuse?
 - 1) $\sqrt{2}$
 - 2) $2\sqrt{3}$
 - 3) $2\sqrt{6}$
 - 4) $\sqrt{74}$
- 3 The "Little People" day care center has a rectangular, fenced play area behind its building. The play area is 30 meters long and 20 meters wide. Find, to the *nearest meter*, the length of a pathway that runs along the diagonal of the play area.
- 4 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?
 - 1) 8 ft
 - 2) 10 ft
 - 3) 12 ft
 - 4) 26 ft
- 5 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?
 - 1) 8
 - 2) 9
 - 3) 11
 - 4) 12
- 6 How many feet from the base of a house must a 39-foot ladder be placed so that the top of the ladder will reach a point on the house 36 feet from the ground?
- 7 An 18-foot ladder leans against the wall of a building. The base of the ladder is 9 feet from the building on level ground. How many feet up the wall, to the *nearest tenth of a foot*, is the top of the ladder?

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Answer Section

1 ANS: 3

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

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

$$25 = c$$

PTS: 2

REF: 060710a

2 ANS: 4

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

$$74 = c^2$$

$$\sqrt{74} = c$$

PTS: 2

REF: 010202a

3 ANS:

$$30^2 + 20^2 = c^2$$

$$36. \quad 1300 = c^2$$

$$36 \approx c$$

PTS: 2

REF: 010933a

4 ANS: 3

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

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

$$b = 12$$

PTS: 2

REF: 080707a

5 ANS: 4

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

$$b^2 = 144$$

$$b = 12$$

PTS: 2

REF: 060115a

6 ANS:

$$36^2 + b^2 = 39^2$$

$$15. \quad b^2 = 225. \quad 15, 36, 39 \text{ is a multiple of the } 5, 12, 13 \text{ triangle.}$$

$$b = 15$$

PTS: 2

REF: 080122a

7 ANS:

$$9^2 + b^2 = 18^2$$

15.6. $b^2 = 243$

$$b \approx 15.6$$

PTS: 2

REF: 060832a