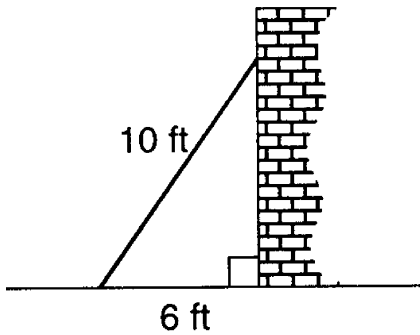
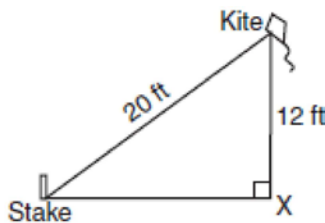


G.SRT.C.8: Pythagorean Theorem 3

- 1 A wall is supported by a brace 10 feet long, as shown in the diagram below. If one end of the brace is placed 6 feet from the base of the wall, how many feet up the wall does the brace reach?

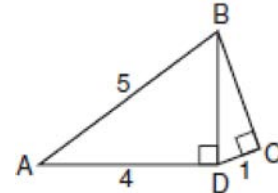


- 2 How many feet from the base of a house must a 39-foot ladder be placed so that the top of the ladder will reach a point on the house 36 feet from the ground?
- 3 An 18-foot ladder leans against the wall of a building. The base of the ladder is 9 feet from the building on level ground. How many feet up the wall, to the *nearest tenth of a foot*, is the top of the ladder?
- 4 The accompanying diagram shows a kite that has been secured to a stake in the ground with a 20-foot string. The kite is located 12 feet from the ground, directly over point X. What is the distance, in feet, between the stake and point X?

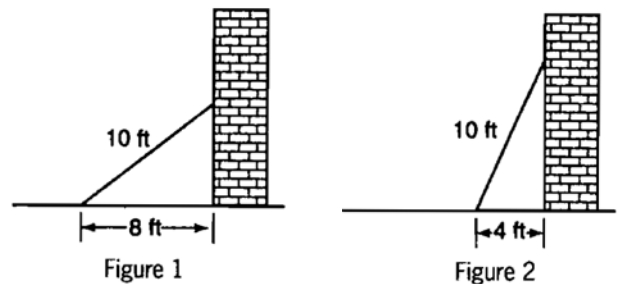


- 5 The "Little People" day care center has a rectangular, fenced play area behind its building. The play area is 30 meters long and 20 meters wide. Find, to the *nearest meter*, the length of a pathway that runs along the diagonal of the play area.

- 6 In the accompanying diagram of right triangles ABD and DBC , $AB = 5$, $AD = 4$, and $CD = 1$. Find the length of BC , to the *nearest tenth*.



- 7 A 10-foot ladder is placed against the side of a building as shown in figure 1 below. The bottom of the ladder is 8 feet from the base of the building. In order to increase the reach of the ladder against the building, it is moved 4 feet closer to the base of the building as shown in figure 2.



To the *nearest foot*, how much further up the building does the ladder now reach? Show how you arrived at your answer.

- 8 The aspect ratio (the ratio of screen width to height) of a rectangular flat-screen television is 16:9. The length of the diagonal of the screen is the television's screen size. Determine and state, to the *nearest inch*, the screen size (diagonal) of this flat-screen television with a screen height of 20.6 inches.

G.SRT.C.8: Pythagorean Theorem 3

Answer Section

1 ANS:

$$6^2 + b^2 = 10^2$$

8. $b^2 = 64$ 6, 8, 10 is a multiple of the 3, 4, 5 triangle.

$$b = 8$$

REF: 010023a

2 ANS:

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

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

$$b = 15$$

REF: 080122a

3 ANS:

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

15.6. $b^2 = 243$

$$b \approx 15.6$$

REF: 060832a

4 ANS:

$$12^2 + b^2 = 20^2$$

16. $b^2 = 256$. 12, 16, 20 is a multiple of the 3, 4, 5 triangle.

$$b = 16$$

REF: 080531a

5 ANS:

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

36. $1300 = c^2$

$$36 \approx c$$

REF: 010933a

6 ANS:

$$BD = 3$$

2.8. $1^2 + b^2 = 3^2$

$$b^2 = 8$$

$$b \approx 2.8$$

REF: 080633a

7 ANS:

3. Figure 1: $b = \sqrt{10^2 - 8^2} = 6$. Figure 2: $b = \sqrt{10^2 - 4^2} \approx 9$. $9 - 6 = 3$

REF: spring9834a

8 ANS:

$$\frac{16}{9} = \frac{x}{20.6} \quad D = \sqrt{36.6^2 + 20.6^2} \approx 42$$

$$x \approx 36.6$$

REF: 011632geo