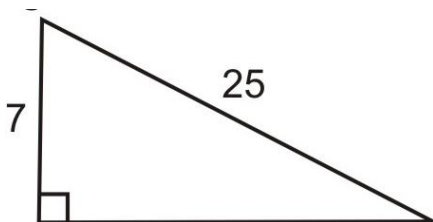Name _____

Pythagorean Theorem Word Problems

Round all answers to the nearest tenth.

1. Brenna has let out 90 feet of kite string when she observes that Christina is directly below the kite. If Brenna is 60 feet from Christina, how high is the kite?

2. A baseball diamond is actually a square that is 90 feet on each side. The first baseman is trying to make a double play by throwing the ball to the third baseman. How far does he have to throw to get the ball from first base to third base?

3. A boat leaves the marina and travels directly north for 30 miles and then directly east for 26 miles. How far is the boat from the marina?

4. A newly planted tree needs to be anchored with *three* ropes. Each rope is attached to the trunk of the tree 2 feet above the ground and then anchored to the ground 6 feet from the base of the tree. How much rope is needed for *six* trees?

5. Kody is running late for school. He cuts through his neighbor's lawn. The lawn is in the shape of a rectangle 100 feet long and 50 feet wide with sidewalks around the outside. How much shorter is it for Kody to cut through the grass and walk diagonally across the lawn than to walk along the two sides on the sidewalk?

6. An inclined ramp rises 4 feet over a distance of 9 feet. How long is the ramp?

7. A contractor needs to add diagonal braces to a wall. The wall is 16 feet wide and 12 feet high. What is the length of each brace?

8. A 10-foot ladder is leaning against a wall. If the base of the ladder is 2 feet from the wall, how high on the wall does the ladder reach?

9. Determine whether each of the following sets of numbers would form a right triangle. Write *yes* or *no* for each.

    a. 8, 15, 17 _____

    b. 15, 20, 25 _____

    c. 20, 48, 52 _____

    d. 2, 9, 11 _____

    e. 39, 80, 89 _____

10. Find the perimeter of the triangle shown below.

The Pythagorean Theorem Word Problems Answers

Round all answers to the nearest tenth.

1. Brenna has let out 90 feet of kite string when she observes that Christina is directly below the kite. If Brenna is 60 feet from Christina, how high is the kite?

$$30\sqrt{5} \approx 67.1 \; feet$$

2. A baseball diamond is actually a square that is 90 feet on each side. The first baseman is trying to make a double play by throwing the ball to the third baseman. How far does he have to throw to get the ball from first base to third base?

$$90\sqrt{2} \approx 127.3 \; feet$$

3. A boat leaves the marina and travels directly north for 30 miles and then directly east for 26 miles. How far is the boat from the marina?

$$2\sqrt{394} \approx 39.7 \; feet$$

4. A newly planted tree needs to be anchored with *three* ropes. Each rope is attached to the trunk of the tree 2 feet above the ground and then anchored to the ground 6 feet from the base of the tree. How much rope is needed for *six* trees?

$$One\; Rope: 2\sqrt{10} \approx 6.3$$

$$Six\; Trees\; (Three\; ropes\; each): 36\sqrt{10} \approx 113.8 \; feet$$

5. Kody is running late for school. He cuts through his neighbor's lawn. The lawn is in the shape of a rectangle 100 feet long and 50 feet wide with sidewalks around the outside. How much shorter is it for Kody to cut through the grass and walk diagonally across the lawn than to walk along the two sides on the sidewalk?

$$Diagonal\; distance: 50\sqrt{5} \approx 111.8 \; feet$$

$$38.2 \; feet\; shorter$$

6. An inclined ramp rises 4 feet over a distance of 9 feet. How long is the ramp?

$$\sqrt{97} \approx 9.8 \; feet$$

7. A contractor needs to add diagonal braces to a wall. The wall is 16 feet wide and 12 feet high. What is the length of each brace?

$$20 \; feet$$

8. A 10-foot ladder is leaning against a wall. If the base of the ladder is 2 feet from the wall, how high on the wall does the ladder reach?

$$4\sqrt{6} \approx 9.8 \; feet$$

9. Determine whether each of the following sets of numbers would form a right triangle. Write *yes* or *no* for each.
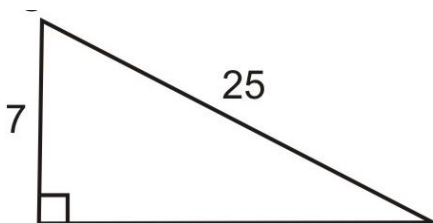
   a. $8, 15, 17$ yes

   b. $15, 20, 25$ yes

   c. $20, 48, 52$ yes

   d. $2, 9, 11$ no

   e. $39, 80, 89$ yes

10. Find the perimeter of the triangle shown below.

$Missing \; side: 24$
$Perimeter: 56$