Name: _____ **Date:** _____ **Period:** _____

Pythagorean Theorem Practice

Solve each problem. Show all work. Round answers to the nearest tenth if necessary.

1. A right triangle has legs of lengths 6 cm and 8 cm. Find the length of the hypotenuse.

2. A 13-foot ladder is leaning against a wall. The base of the ladder is 5 feet from the wall. How high up the wall does the ladder reach?

3. Find the missing side length of a right triangle with a hypotenuse of 25 inches and one leg of 7 inches.

4. A rectangular field is 40 meters long and 30 meters wide. What is the distance from one corner to the opposite corner?

5. The legs of a right triangle are 9 cm and 12 cm. What is the perimeter of the triangle?

6. A television screen measures 32 inches diagonally and 24 inches in height. What is the width of the screen?

7. A right triangle has a hypotenuse of 17 feet and one leg of 15 feet. Find the length of the other leg.

8. A ramp rises 3 feet over a horizontal distance of 4 feet. What is the length of the ramp?

9. Two friends start at the same point. One walks 5 miles north, the other walks 12 miles east. How far apart are they?

10. A right triangle has legs of lengths x and $x + 1$, and a hypotenuse of length 5. Find the value of x.

Answer Key

1. $c = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$ cm
2. $h = \sqrt{13^2 - 5^2} = \sqrt{169 - 25} = \sqrt{144} = 12$ feet
3. $b = \sqrt{25^2 - 7^2} = \sqrt{625 - 49} = \sqrt{576} = 24$ inches
4. $d = \sqrt{40^2 + 30^2} = \sqrt{1600 + 900} = \sqrt{2500} = 50$ meters
5. Hypotenuse $= \sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15$ cm. Perimeter $= 9 + 12 + 15 = 36$ cm
6. $w = \sqrt{32^2 - 24^2} = \sqrt{1024 - 576} = \sqrt{448} \approx 21.2$ inches
7. $b = \sqrt{17^2 - 15^2} = \sqrt{289 - 225} = \sqrt{64} = 8$ feet
8. $r = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ feet
9. $d = \sqrt{5^2 + 12^2} = \sqrt{25 + 144} = \sqrt{169} = 13$ miles
10. $x^2 + (x+1)^2 = 5^2$; $x^2 + x^2 + 2x + 1 = 25$; $2x^2 + 2x - 24 = 0$; $x^2 + x - 12 = 0$; $(x+4)(x-3) = 0$; $x = 3$ (positive solution)