ALBERT

Name _____ Date _____

Pythagorean Theorem Worksheet

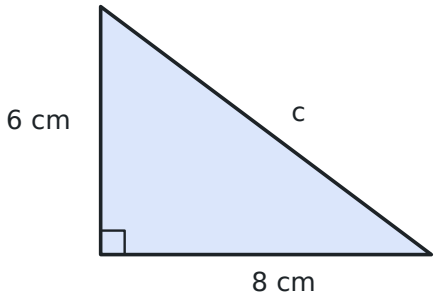
Grade 8 · Common Core 8.G.B.7

> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Practice

Builds the skill step by step.

1. A right triangle has legs of 6 cm and 8 cm. How long is the hypotenuse?

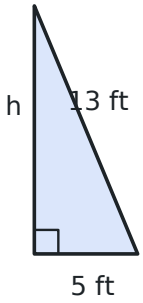


2. A right triangle has legs of 5 m and 12 m. How long is the hypotenuse?

3. A right triangle has a hypotenuse of 25 in. and one leg of 7 in. How long is the other leg?

4. A right triangle has a hypotenuse of 17 ft and one leg of 15 ft. How long is the other leg?

5. A 13-foot ladder leans against a wall. Its base is 5 feet from the wall. How high up the wall does the ladder reach?



6. A rectangle is 9 cm wide and 12 cm long. How long is its diagonal?

7. A right triangle has two legs of 4 units each. How long is the hypotenuse, to the nearest tenth?

8. A right triangle has one leg of 9 and a hypotenuse of 15. Which equation finds the other leg b?

   A. $9^2 + b^2 = 15^2$

   B. $9 + b = 15$

   C. $9^2 + 15^2 = b^2$

   D. $b = 9 \times 15$

9. A TV screen is 32 inches wide and 24 inches tall. How long is its diagonal?

10. A right triangle has legs of 1 and 2 units. How long is the hypotenuse, to the nearest tenth?

ALBERT

Name _____ Date _____

Pythagorean Theorem Worksheet

Grade 8 · Common Core 8.G.B.7

On Level

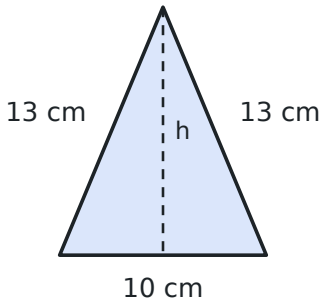
Grade-level practice.

1. Dev walks 8 blocks east and then 15 blocks north. How far is he from where he started, in a straight line?

2. A wheelchair ramp rises 3 feet over a horizontal distance of 10 feet. How long is the ramp, to the nearest tenth of a foot?

3. A square has sides of 10 cm. How long is its diagonal, to the nearest tenth?

4. An isosceles triangle has two sides of 13 cm and a base of 10 cm. How tall is it, measured from the base to the top vertex?



5. A kite string is 100 feet long and pulled tight. The kite is 60 feet away horizontally from the person holding the string. How high is the kite above the person's hand?

6. A box is 3 in. long, 4 in. wide and 12 in. tall. How long is the longest straight rod that fits inside, from one bottom corner to the opposite top corner?

7. A baseball diamond is a square with sides of 90 feet. How far is it from home plate to second base (opposite corners), to the nearest tenth of a foot?

8. A rectangular garden is 20 m by 21 m. How long is a path straight across it from corner to corner?

   A. 24 m

   B. 29 m

   C. 41 m

   D. 841 m

9. A right triangle has a hypotenuse of 61 cm and one leg of 11 cm. How long is the other leg?

10. A phone screen is 2.5 inches wide and 6 inches tall. How long is its diagonal?

ALBERT

Name _____ Date _____

Pythagorean Theorem Worksheet

Grade 8 · Common Core 8.G.B.7

Challenge

Multi-step and word problems that stretch it.

1. A cube has edges of 4 cm. How long is the diagonal from one bottom corner to the opposite top corner, to the nearest tenth?

2. A box is 6 ft long, 8 ft wide and 24 ft tall. How long is the diagonal from one bottom corner to the opposite top corner?

3. A right triangle has a hypotenuse of 26 cm. Its legs are in the ratio 5 : 12. What is its perimeter?

4. A right triangle has a hypotenuse of 13 and a leg of 5. Ana writes $b^2 = 13^2 + 5^2 = 194$. What is her error?

   A. She should divide: $b = 13 \div 5$.

   B. There is no error.

   C. She should subtract: $b^2 = 169 - 25 = 144$, so $b = 12$.

   D. She should add the sides: $b = 13 + 5 = 18$.

5. A box has a rectangular bottom that is 18 in. by 12 in. Can a 22-inch umbrella lie flat on the bottom of the box? Answer Yes or No.

6. An equilateral triangle has sides of 10 cm. How tall is it, to the nearest tenth?

7. A 25-foot ladder leans against a wall with its top 24 feet up. The top slides down 4 feet. How many feet does the base move away from the wall?

8. A right triangle has legs of x and x + 7 and a hypotenuse of 13. What is x?

9. A room is 12 ft wide, 16 ft long and 10 ft tall. How long is the diagonal from one floor corner to the opposite ceiling corner, to the nearest tenth?

10. A rhombus has diagonals of 10 cm and 24 cm. The diagonals of a rhombus cut each other in half at right angles. How long is each side?