

Grade 8 - The Pythagorean Theorem - Worksheet

Common Core 8.G.B.6, 8.G.B.7 · maths-pdf.fr/en/

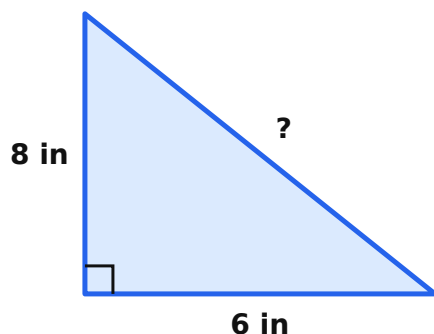
Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice the Pythagorean theorem, its converse and applications in two and three dimensions (Common Core 8.G.B.6 and 8.G.B.7). Each problem has its own space for work, so print the page and write directly on it.

The problems start with direct skill checks and grow harder as you go. Later items use the converse, three dimensions and real situations such as ladders and ramps. Use the answer key afterwards to check every step.

Grade 8 · Common Core State Standards: **8.G.B.6, 8.G.B.7**

Exercise 1 - Find the hypotenuse



A right triangle.

Find the hypotenuse of a right triangle with legs 6 inches and 8 inches.

Exercise 2 - Another triple

Find the hypotenuse of a right triangle with legs 5 and 12.

Exercise 3 - Find a leg

A right triangle has hypotenuse 17 and one leg 8. Find the other leg.

Exercise 4 - Not a whole number

Find the hypotenuse of a right triangle with legs 7 and 9. Round to the nearest tenth.

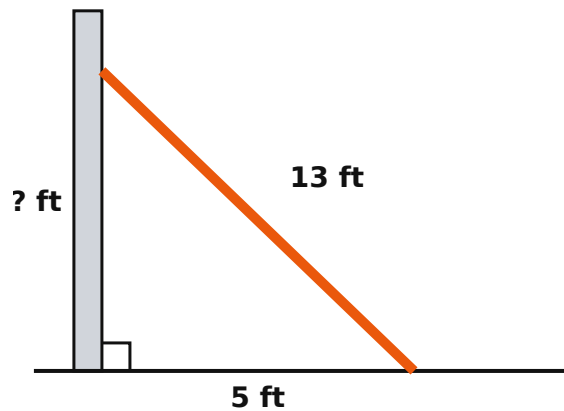
Exercise 5 - Is it a right triangle?

Is a triangle with sides 9, 12 and 15 a right triangle?

Exercise 6 - Not a right triangle

Is a triangle with sides 7, 8 and 12 a right triangle?

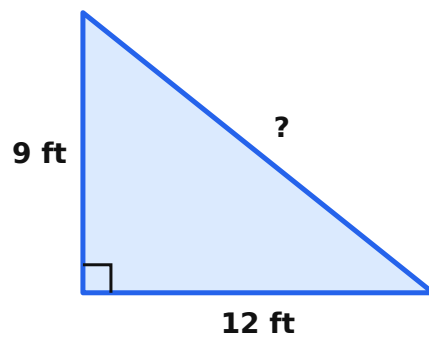
Exercise 7 - Ladder



A ladder leaning on a wall.

A 13-foot ladder leans on a wall with its base 5 feet from the wall. How high up the wall does it reach?

Exercise 8 - Rectangle diagonal



Half of a 12 ft by 9 ft rectangle.

A rectangular patio is 12 feet by 9 feet. How long is its diagonal?

Exercise 9 - TV screen

A TV screen is 40 inches wide and 24 inches tall. Find the diagonal measure to the nearest tenth.

Exercise 10 - Isosceles right triangle

A right triangle has two equal legs of length 10. Find the hypotenuse to the nearest tenth.

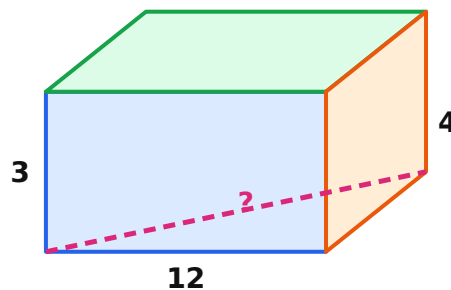
Exercise 11 - Perimeter

A right triangle has legs 9 and 12. Find its perimeter.

Exercise 12 - Test the converse

Use the converse to decide whether 20, 21 and 29 are the sides of a right triangle.

Exercise 13 - 3D box



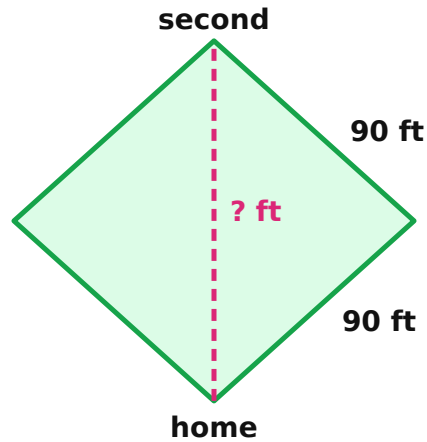
A box with edges 3, 4 and 12.

Find the length of the space diagonal of a box with edges 3, 4 and 12.

Exercise 14 - Smaller box

Find the space diagonal of a box measuring 2 by 3 by 6.

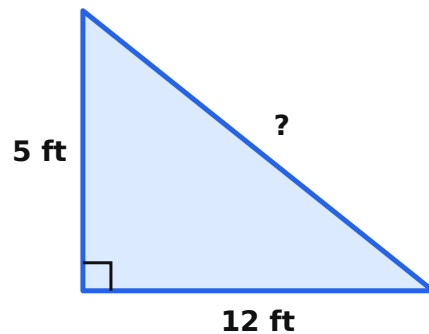
Exercise 15 - Baseball diamond



Throw from home plate to second base.

The bases on a Little League field are 90 feet apart. How far is a throw from home plate to second base? Round to the nearest tenth.

Exercise 16 - Ramp



A ramp.

A ramp rises 5 feet over a horizontal distance of 12 feet. How long is the ramp?

Exercise 17 - Kite string

Diego flies a kite. The kite is 40 feet above the ground and 30 feet horizontally from Diego. How long is the string, ignoring Diego's height?

Exercise 18 - Shortcut

A hiker walks 5 miles north and then 12 miles east. A straight path back is shorter. How many miles does she save by walking the direct path home?

Exercise 19 - Phone screen

A phone screen is 2.5 inches wide and 5.5 inches tall. Find its diagonal to the nearest tenth.

Exercise 20 - Explain

Liam says the theorem works for every triangle. Give a counterexample.