

Watch. Practice. Understand. | Lesson 051

The Secret of Similar Right Triangles with Geometric Mean (Big Idea Geometry 9.3)

Watch the matching video: <https://www.youtube.com/watch?v=sbO5YMaYU>

Practice focus: Right and special right triangles

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find the hypotenuse of a right triangle with legs 9 and 12.

02 A 45-45-90 triangle has leg 7. Find its other leg and hypotenuse.

03 A 30-60-90 triangle has short leg 5. Find its long leg and hypotenuse.

04 The altitude to a right triangle's hypotenuse splits it into lengths 4 and 9. Find the altitude.

Worked answers | Lesson 051

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01 Find the hypotenuse of a right triangle with legs 9 and 12.

$$c = \sqrt{(81 + 144)} = 15.$$

02 A 45-45-90 triangle has leg 7. Find its other leg and hypotenuse.

The other leg is 7; hypotenuse is $7\sqrt{2}$.

03 A 30-60-90 triangle has short leg 5. Find its long leg and hypotenuse.

Long leg $5\sqrt{3}$; hypotenuse 10, using ratio $1:\sqrt{3}:2$.

04 The altitude to a right triangle's hypotenuse splits it into lengths 4 and 9. Find the altitude.

Altitude theorem: $h^2 = 4(9)$, so $h = 6$.