Lesson 1: The Pythagorean Theorem

Classwork

**Example 1**

Write an equation that will allow you to determine the length of the unknown side of the right triangle.



**Example 2**

Write an equation that will allow you to determine the length of the unknown side of the right triangle.



Example 3

 Write an equation to determine the length of the unknown side of the right triangle.

**Example 4**

 In the figure below, we have an equilateral triangle with a height of 10 inches. What do we know about an equilateral triangle?

Exercises 1–3

1. Use the Pythagorean Theorem to estimate the length of the unknown side of the right triangle. Explain why your estimate makes sense.



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Let represent the length of the hypotenuse. Then,

The number is not a perfect square, but it is between the perfect squares and . Therefore, the length of the hypotenuse is between and , but closer to because is closer to the perfect square than it is to the perfect square .

Lesson Summary

Perfect square numbers are those that are a product of an integer factor multiplied by itself. For example, the number is a perfect square number because it is the product of multiplied by

When the square of the length of an unknown side of a right triangle is not equal to a perfect square, you can estimate the length by determining which two perfect squares the number is between.

Example:



Problem Set

1. Use the Pythagorean Theorem to estimate the length of the unknown side of the right triangle. Explain why your estimate makes sense.



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1. Determine the length of the unknown side of the right triangle. Explain how you know your answer is correct.



1. Use the Pythagorean Theorem to estimate the length of the unknown side of the right triangle. Explain why your estimate makes sense.



1. The triangle below is an isosceles triangle. Use what you know about the Pythagorean Theorem to determine the approximate length of base of the isosceles triangle.



1. Give an estimate for the area of the triangle shown below. Explain why it is a good estimate.

