

8-1 Solve It!

Solve It! **Getting Ready!**

The squares below fit into groups of three to satisfy the following equation.
 $\text{area of square 1} + \text{area of square 2} = \text{area of square 3}$

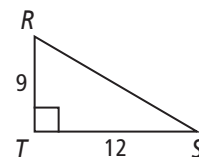
Using each square only once, write an equation for each group. What is the relationship between the three sets of numbers? Explain.

Squares? Isn't this chapter about right triangles? They actually have more in common than meets the eye.

Squares shown: 4, 6, 10, 1.5, 5, 8, 2, 3, 2.5

8-1 Lesson Quiz

- What is the length of the hypotenuse of $\triangle RST$? Do the side lengths of $\triangle RST$ form a Pythagorean triple? Explain.
- Cassie's computer monitor is in the shape of a rectangle. The screen on the monitor is 11.5 in. high and 18.5 in. wide. What is the length of the diagonal? Round to the nearest tenth of an inch.
- A triangle has side lengths 24, 32, and 42. Is it a right triangle? Explain.
- A triangle has side lengths 9, 10, and 12. Is it acute, obtuse, or right? Explain.
- Do you UNDERSTAND?** Can three segments with lengths 4 cm, 6 cm, and 11 cm be assembled to form an acute triangle, a right triangle, or an obtuse triangle? Explain.



Answers

Solve It!

$3^2 + 4^2 = 5^2$, $6^2 + 8^2 = 10^2$, $1.5^2 + 2^2 = 2.5^2$; answers may vary. Sample: The numbers 6, 8, and 10 result from multiplying 3, 4, and 5 by 2. The numbers 3, 4, and 5 result from multiplying 1.5, 2, and 2.5 by 2.

Lesson Quiz

- 15; Yes, because all three side lengths are whole numbers.
- 21.8 in.
- No, the side lengths do not satisfy the Pythagorean Theorem.
- Acute; $9^2 + 10^2 = 181$ and $12^2 = 144$, so the triangle is acute by Theorem 8-4.
- Because $4 + 6 < 11$, the three lengths cannot form a triangle of any kind.