

EXTRA PRACTICE — Exercises

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Unit VIII – Quadratic Equations

Part C – Problem Solving With Quadratic Relations

Lesson 2 – “Pythagorean Theorem” Problems

For each of the following story problems, answer the four analysis questions to find the system of equations needed to solve. Then solve and use common sense to check your answer.

1. One leg of a right triangle is two-thirds the length of the other leg. The hypotenuse is eighteen feet. Find the length of the longer leg.
2. The diagonal of a rectangle is sixty centimeters long. If the length of the rectangle is twelve centimeters greater than the width, find the dimensions.
3. The length of a rectangle is one centimeter more than twice its width, and two centimeters less than the length of the diagonal of the rectangle. Find the dimensions of the rectangle.
4. A student pilot leaves the Seachi Municipal Airport at 8:00 a.m. on his first solo flight. He is traveling due west at one hundred twenty-five miles per hour. At 9:00 a.m., he turns and flies in a southeasterly direction at the same speed. At 11:00 a.m., he notices that the fuel gauge indicates low fuel. At this time, he is directly south of the airport. How far must he travel to get back to the airport?
5. A landscaper is designing a flower garden in the shape of a right triangle. She wants ten feet of a border for perennial flowers to form the hypotenuse of the triangle, and one leg is to be two feet longer than the other. Find the length of the legs.

EXTRA PRACTICE — Answer Key

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For each of the following story problems, answer the four analysis questions to find the system of equations needed to solve. Then solve and use common sense to check your answer.

1. 14.9769 ft.
2. width = 36 cm
length = 48 cm
diagonal = 60 cm
3. width = 8.898 cm
length = 18.796 cm
diagonal = 20.796 cm
4. 216.5 miles
5. leg one = 6 feet
leg two = 8 feet
hypotenuse = 10 feet