Name: _____ Date: _____

Solving Quadratic Word Problems I
Algebra 1 Homework

Applications

Solve each of the following quadratic word problems ***algebraically***.

1. Two consecutive odd integers have a product of 99. Find all sets of integers that satisfy this description.

2. The product of two consecutive positive even integers is 14 more than their sum. Find the integers.

3. Find three consecutive positive integers such that the product of the first and the third is 29 more than the second.

4. The length of a rectangle is 4 less than twice the width. The area of the rectangle is 70. Find the dimensions of the rectangle.

5. An object is launched straight up into the air at an initial velocity of 64 feet per second. It is launched from a height of 6 feet off the ground. Its height H, in *feet*, at t seconds is given by the equation $H = -16t^2 + 64t + 6$. Find all times t that the object is at a height of 54 feet off the ground.

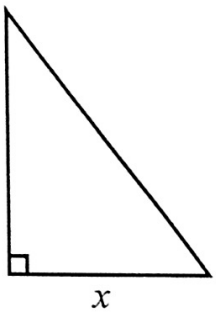
6. A rectangular picture has a height that is $\frac{5}{7}$ of its width. Its area is 140 square inches. What are the dimensions of the picture?

7. The square of a number decreased by 3 times the number is 28. Find all possible values for the number.

8. In a right triangle, the length of the longer leg is 7 more inches than the shorter leg. The length of the hypotenuse is 8 more inches than the length of the shorter leg.

(a) If the shortest leg is represented by x, write expressions for the longer leg and the hypotenuse in terms of x. Label them on the diagram.

(b) Write an equation using the Pythagorean Theorem that relates the three sides together and solve it for the value of x.



(c) Find all three side lengths, and check your answer by verifying that $a^2 + b^2 = c^2$.