

Name_____ Date_____ Pd_____

Algebra 2: Quadratic word problems: Set up an equation and then solve.

1. If a number is subtracted from its square, the result is 30. Find all possible values for the number.
2. If a positive number is added to its square, the result is 56. Find the number.
3. A positive number is 42 less than its square. Find the number.
4. The length of a rectangle is 8 cm greater than its width. Find the dimensions of the rectangle if the area is 105 cm^2 .
5. The length of a rectangle is 6 cm less than twice its width. Find the dimensions of the rectangle if the area is 108 cm^2 .
6. One leg of a right triangle is one inch shorter than the other leg. If the hypotenuse is 5 inches, find the length of the shorter leg.

7. Find two consecutive positive odd integers whose product is 63.

8. The sum of the squares of two consecutive positive even integers is 100. Find the integers.

9. A ball is thrown into the air modeling the equation $h(t) = -16t^2 + 48t + 4$. The height, $h(t)$, is in feet, and t is the time in seconds.

a. What height will the ball be at $t = 2$ seconds?	b. At what time will the ball reach its maximum height?	c. What is the ball's maximum height?
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10. The function $h(t) = -16t^2 + 1600$ gives an object's height h , in feet, after t seconds.

a. What is the height of the ball at $t = 3$ seconds?	b. At what time will the object be 1200 feet above the ground?	c. At what time will the ball hit the ground?
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Challenge:

11. A square is changed so that one dimension is increased by 4, while the other dimension is decreased by 2. The area of the resulting rectangle is 55. Find the area of the original square.

12. Find three consecutive positive integers such that the sum of the squares of the two smaller numbers is 45 more than the square of the largest number. What is the sum of the three numbers?

ANSWERS

1. -5, 6
2. 7
3. 7
4. 7 cm, 15 cm
5. 9 cm, 12 cm
6. 3
7. 7, 9
8. 6, 8
- 9a. 36 ft
- 9b. $\frac{3}{2}$ sec
- 9c. 40 ft
- 10a. 1456 ft
- 10b. 5 sec
- 10c. 10 sec
11. 49 square units
12. sum = 27