7.6 Applications of Quadratic Equations

Examples:

1. One number is four more than another and the sum of their squares is 296. What are the numbers?

2. In an orange grove, there are 10 more trees in each row than there are rows. How many rows are there if there are 96 trees in the grove?

3. A man wants to build a block wall shaped like a rectangle along three sides of his property. If 180 feet of fencing is needed and the area of the lot is 4000 square feet, what are the dimensions of the lot?

4. The sum of the squares of two consecutive positive odd integers is 202. Find the integers.

5. The square of a number minus twice the number is 63. Find the number.

6. An object is dropped from the room of a 144-foot tall building. Neglecting air resistance, the height h in feet of the object above ground after t seconds is given by the quadratic equation  $h = -16t^2 + 144$  Find how long it takes the object to hit the ground.

7. The length of a rectangle is 5 feet more than the width. The area of the rectangle is 176 square feet. Find the length and width of the rectangle

8. Find 2 consecutive odd integers who product is 23 more than their sum.

9. Find the length of the each side of a right triangle if the legs are 1 less than the hypotenuse and 8 less than the hypotenuse

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