

LESSON
9.5**Challenge Practice***For use with the lesson "Solve Quadratic Equations by Completing the Square"*

1. The product of two consecutive positive even integers is 224. Find the integers.
2. The product of two consecutive positive odd integers is 143. Find the integers.
3. The product of two consecutive positive integers is equal to eleven times the sum of the two integers plus 35. Find the integers.
4. The sum of the squares of two consecutive positive integers is 421. Find the integers.
5. The sum of the squares of a positive integer and five more than twice the integer is equal to 1810. Find the integer.

In Exercises 6–9, complete the square to solve for x .

6. $x^2 + bx + 5 = 12$
7. $x^2 - 5x + c = 3$
8. $x^2 + bx + c = 0$
9. $ax^2 + bx + c = 0$
10. You are planning a vegetable garden and you lay out a rectangular design 10 feet wide by 20 feet long. After laying out the design you decide you want a larger garden and decide to increase the length of the garden by a length of $2x$ feet and increase the width by a length of x feet. You have enough dirt to cover an area of 600 square feet, and you want to make the garden as large as possible. What are the dimensions of the finished garden? Round your answer to the nearest foot.
11. The path of a rocket shot into the air is modeled by the equation $h = -25t^2 + 50t + 4$ where h is the height (in feet) of the rocket above the ground t seconds after it is launched. Find the number of seconds after launch it takes for the rocket to touch back down to the ground. Round your answer to the nearest hundredth second.