

# 8.3 Quadratic Word Problems

## Consecutive Integers

Consecutive means one after the other. To find the product, the first number ( $x$ ) should be multiplied with the second ( $x + 1$ ) to find the total.

1. The product of two consecutive negative integers is 1122. What are the numbers?

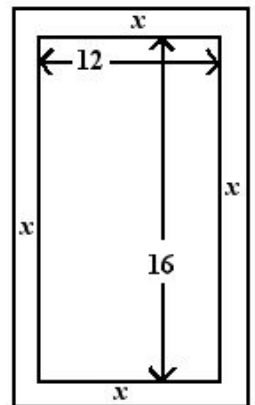
## Missing Lengths to Find Area

Pictures usually help here if you are a visual person. Make sure you are using the correct formulas for area!

1. The width of a rectangle is  $(x-5)$  and the length is  $(x+2)$ . What is the length and width of the rectangle if the area is 18 square feet?
2. The width of a rectangle is  $(x+1)$  and the length is  $(x-6)$ . What is the length and width of the rectangle if the area is 30 square feet?
3. The area of a triangular lot is 225 square feet. The base of the lot is 7 more than its height. Find the length of the base and the height.

## Increasing or Decreasing Lengths by "x"

1. A garden measuring 12 meters by 16 meters is to have a pedestrian pathway installed all around it, increasing the total area to 285 square meters. What will be the width of the pathway?
2. A room measures 18 x 23. The length and width is increased by 'x'. What is the length and width after the increase if the area of the room is now 546 square feet?



## Quadratic Word Problem Set

**Directions:** Solve the following word problems on notebook paper. Be sure to show all work and highlight your final answer. NO credit will be given without work.

1. The length of a rectangle is 4 inches more than the width. The area of the rectangle is  $45 \text{ in}^2$ . Find the length and the width.
2. The base of a triangle is 3 cm longer than its height. The area is  $35 \text{ cm}^2$ . Find the height.
3. A square poster had 9 in added to its width and 2 in subtracted from its height. The new poster now has an area of  $102 \text{ in}^2$ . How long was the original side of the square?
4. Find two consecutive positive integers whose product is 30.
5. Find two consecutive negative integers whose product is 56.
6. The area of a rectangular floor is 105 square feet. If its length is 1 more than twice its width, find the length and width of the floor.
7. A rock breaks loose from a cliff and plunges towards the ground 400 feet below. The distance  $d$  that the rock falls in  $t$  seconds is given by the equation  $d(t) = -16t^2 + 400$ . How long does it take the rock to hit the ground?
8. A rectangular pond measures 3m by 5m. A concrete walkway of uniform width is constructed around the pond. If the walk and pond together cover an area of  $35 \text{ m}^2$ , how wide is the walk?
9. The area of a square field is  $225 \text{ yd}^2$ . How long is each side? What is the perimeter?
10. Joe wants to build a toy box for his sister. It is 2 feet high, and the width is to be 3 feet less than the length. If it needs to hold a volume of 80 cubic feet, find the length and width of the box.
11. The vertical path of a baseball can be modeled by the equation  $h(t) = -16t^2 + 96t - 112$ . How long does it take for the ball to hit the ground?
12. What is the smallest of 3 consecutive positive integers if the product of the smaller two integers is six less than 6 times the largest?
13. The area of a triangular lot is 228 square yards. The base of the lot is 7 yards less than its height. Find the length of the base and height.
14. The larger leg of a right triangle is 7 cm longer than its smaller leg. The hypotenuse is 8 cm longer than the smaller leg. How many centimeters long is the smaller leg?
15. A rectangular pool measures 4yd by 5yd. A concrete deck of uniform width is constructed around the pool. The deck and pool together cover an area of  $90 \text{ yd}^2$ . How wide is the deck?