

Name:

Class:

Algebra, Unit 6: Practice Summative Assessment

Question 1

Draw a line connecting each graph to the set of equations that matches.

$$y = x^2 + 8x + 15$$

$$y = (x + 5)(x + 3)$$

$$y = (x + 4)^2 - 1$$

$$y = x^2$$

$$y = (x - 0)(x - 0)$$

$$y = (x - 0)^2 + 0$$

$$y = x^2 - 8x + 16$$

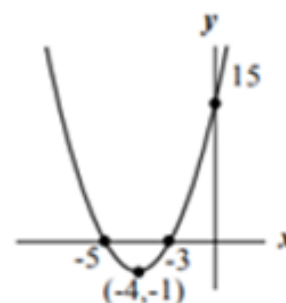
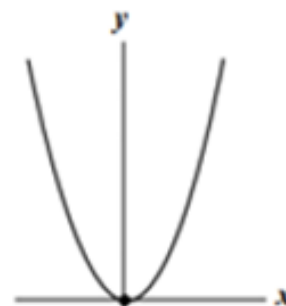
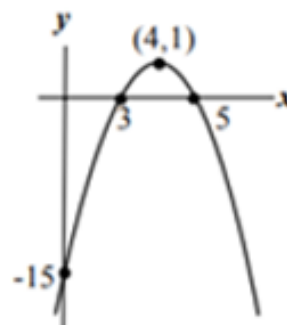
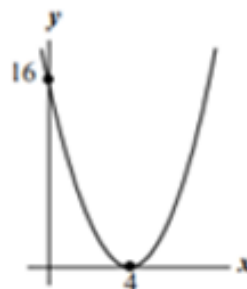
$$y = (x - 4)(x - 4)$$

$$y = (x - 4)^2 + 0$$

$$y = -x^2 + 8x - 15$$

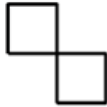
$$y = -(x - 3)(x - 5)$$

$$y = -(x - 4)^2 + 1$$

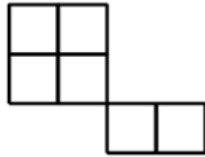


Question 2

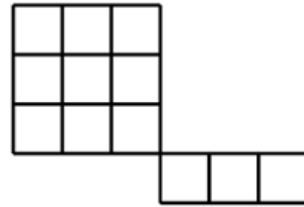
Here is a pattern of squares. S represents the number of small squares in the pattern as a function of n , the step number:



Step 1



Step 2



Step 3

Write an equation for the function $S(n)$.

Question 3

For each expression, write an equivalent expression by applying the distributive property:

a. $(x - 4)(x - 3)$

b. $(x + 5)(x - 2)$

c. $(2x - 1)^2$

Question 4

Select **THREE** expressions that are equivalent to $(3n + 15)(n - 5)$

a. $3(n^2 - 75)$

b. $3(n^2 - 25)$

c. $3n^2 - 30n - 75$

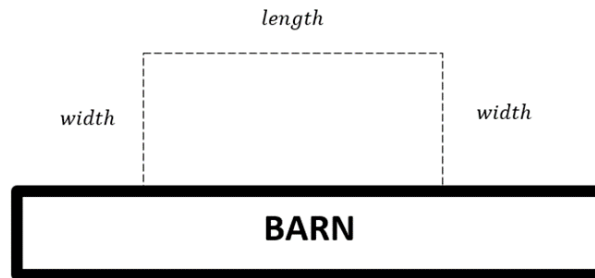
d. $3n^2 - 75$

e. $3(n + 5)(n - 5)$

f. $3(n - 5)^2$

Question 5

You are building a rectangular three-sided fence alongside a barn. You have 240 feet of fence. You want to construct the fence so that the space enclosed has the greatest area possible.



Part A Write an equation to represent l , the length in feet, as a function of w , the width in feet.

Part B Write an equation to represent A , the area in square feet, as a function of w , the width in feet.

Part C What should be the width of the fence, in feet?

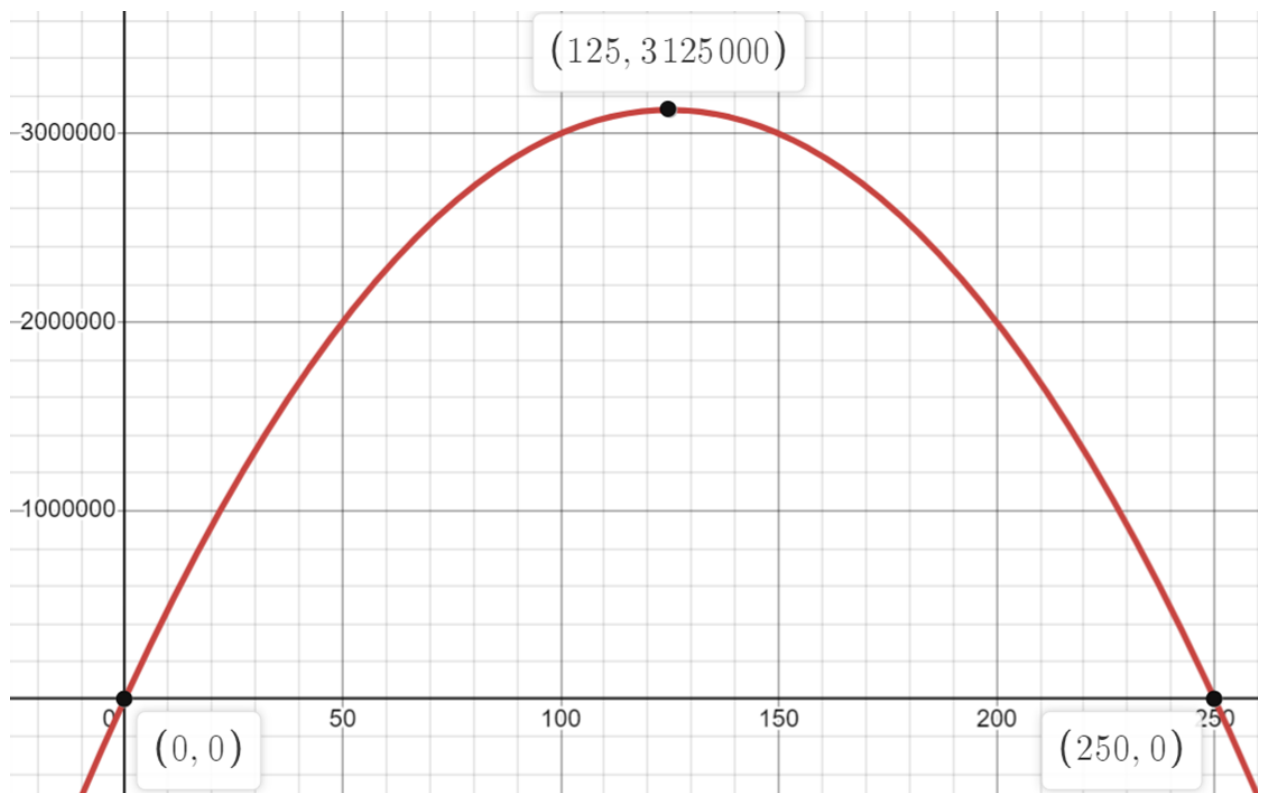
Part D What should be the length of the fence, in feet?

Part E What should be the area of the fence, in square feet?

Question 6

A company finds that if it charges x dollars for a new jacket, it can expect to sell $-200x + 50,000$ jackets.

As set forth in the graph below, the company uses the function r defined by $r(x) = x(-200x + 50000)$ to model the expected revenue, in dollars, from selling jackets at x dollars each.



Part A What do the x -intercepts mean in this situation?

Part B At what price should the company sell the jackets to maximize revenues?

Part C How much revenue should the company expect?

Part D Write the function $r(x) = x(-200x + 50000)$ in factored form.