

Simplify each of the following algebraic expressions by performing the indicated operation.

1. $(x + 8)(x + 3)$

2. $(x - 15)(2x + 4)$

3. $(3x + 6)(2x - 8)$

4. $(3x - 7)^2$

Classify each of the following patterns as linear or quadratic. Write a rule based on the type of function.

5.

x	y
-2	5
-1	2
0	-1
1	-4
2	-7

Pattern:

Explicit:

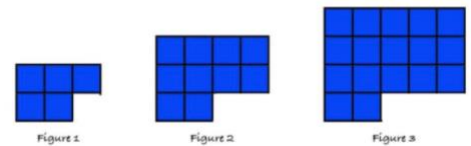
6.



Pattern:

Explicit:

7.



Pattern:

Explicit:

8. Find the area and perimeter of this rectangle:

$(x + 2)$



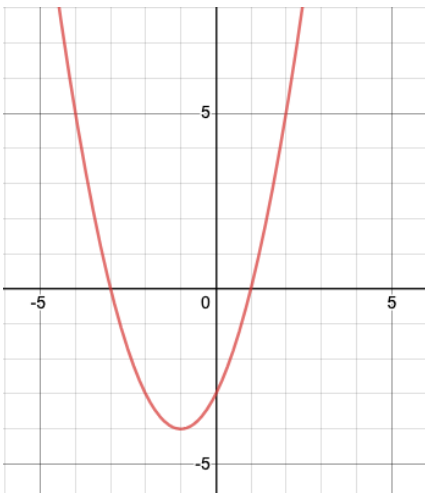
9. The length of a pool is one more than three times the width, w . Which equation represents the total area, A , of the pool?

- A. $A = w^2 + w$ B. $A = 3w + 1$
 C. $A = w^2 + 3w$ D. $A = 3w^2 + w$

10. Jake has 26 yards of fencing to make a rectangular pen for his baby chicks. What dimensions should he use for the sides of the pen to ensure the maximum amount of area for the baby chicks to live in?

- A. 12 yards by 1 yard B. 10 yards by 3 yards
 C. 8 yards by 7 yards D. 6 yards by 7 yards

11. Use the following graph to identify each key feature.



a. Maximum Or Minimum:

b. Vertex:

c. AOS:

d. x-intercept:

e. y-intercept

f. Increasing Interval:

g: Decreasing Interval:

h. Domain:

i. Range:

12. If Farmer Joe has 90 meters of fencing to enclose a rectangular yard, write a formula for the Area, $A(w)$, he can enclose in terms of width, w .

13. Mr. Pelé was kicking a soccer ball to his pal, Cristian, and the height of the soccer ball in meters above ground after t seconds can be modeled by $f(t) = -4.9t^2 + 49t + 53.9$. What is the maximum height the soccer ball reached and at what time did it reach that height?

14. Rewrite each sum or difference in standard polynomial form.

a. $(5x^3 + 3x^2 - 4) + (x^4 - 3x^2 + 10)$

b. $(15 - 3x^3 + 4x) - (5x^3 + 8)$

15. What is the result when $4x^2 - 17x + 36$ is subtracted from $2x^2 - 5x + 25$?