

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

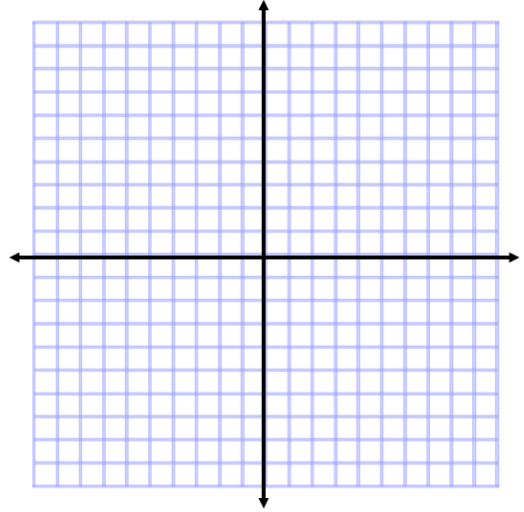
**ALGEBRA 2**

**QUADRATIC FUNCTIONS AND EQUATIONS**

**CHAPTER 4 TEST**

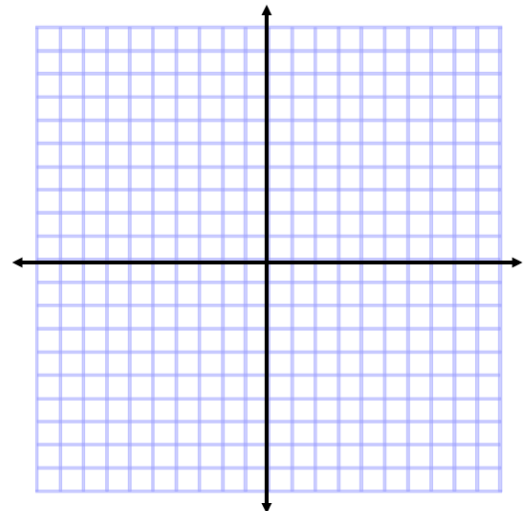
1. Use the function  $y = (x + 4)^2 - 3$  to complete the following:

- Graph the function.
- Identify the vertex.
- Identify the axis of symmetry.
- Identify the maximum or minimum.
- Describe each transformation from the parent function  $y = x^2$ .



2. Use the function  $y = x^2 - 4x + 4$  to complete the following:

- Graph the function.
- Identify the vertex.
- Identify the axis of symmetry.
- Identify the maximum or minimum.
- Describe each transformation from the parent function  $y = x^2$ .



What is the expression in factored form?

3.  $x^2 - 8x + 15$

4.  $3x^2 + 27x + 54$

5.  $x^2 - 9$

Solve the quadratic equation by **FACTORING**.

6.  $x^2 + 11x = -24$

Solve the quadratic equation by **SQUARE ROOT METHOD**.

7.  $2x^2 = 10$

Solve the quadratic equation by **COMPLETING THE SQUARE**.

8.  $x^2 + 10x + 15 = 0$

Use the **QUADRATIC FORMULA** to solve the equation.

9.  $x^2 - 7x = 9$

Simplify the number using the imaginary unit  $i$ .

10.  $\sqrt{-81}$

11.  $\sqrt{-27}$

Simplify the expression.

12.  $(4 - i) + (-3 - 4i)$

13.  $(2 + 2i) - (6 - 6i)$

14.  $(-i)(8i)$

15.  $(-2 + 4i)(-2 - 5i)$

Solve the quadratic equation.

16.  $16x^2 = -9$

Bonus: Solve by COMPLETING THE SQUARE.

$9x^2 - 12x - 2 = 0$