



# DAY 2 Graphing Quadratic Equations

$$y = ax^2 + bx + c$$

Steps to graph a quadratic equation:

- Step 1: Find the axis of symmetry. ✓
- Step 2: Find the vertex. ✓
- Step 3: Fill in a table of values using your calculator.
- Step 4: Graph!

## Practice!

Graph each quadratic equation.

1.  $y = x^2 + 0x + 0$

parent function

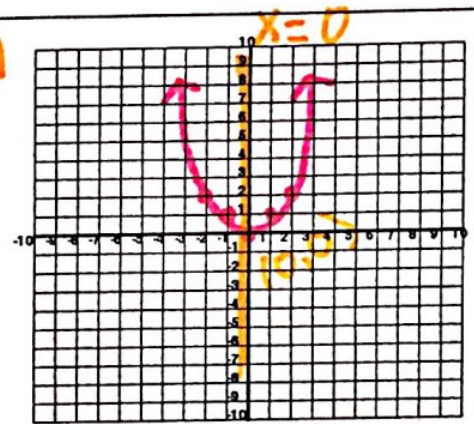
Axis of Symmetry:  $x = 0$

Vertex:  $(0, 0)$

Domain:  $(-\infty, \infty)$

Range:  $[0, \infty)$

x	y
-2	4
-1	1
0	0
1	1
2	4



2.  $y = x^2 + 2x + 5$

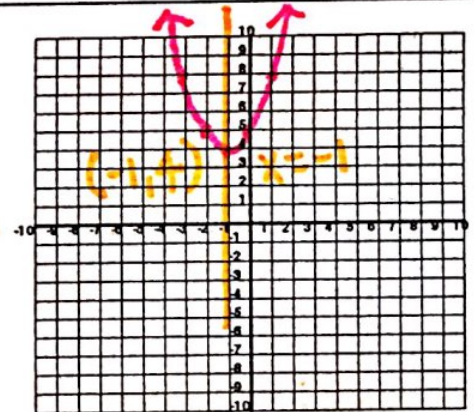
Axis of Symmetry:  $x = -1$

Vertex:  $(-1, 4)$

Domain:  $(-\infty, \infty)$

Range:  $[4, \infty)$

x	y
-3	8
-2	5
-1	4
0	5
1	8



3.  $y = -x^2 - 8x - 17$

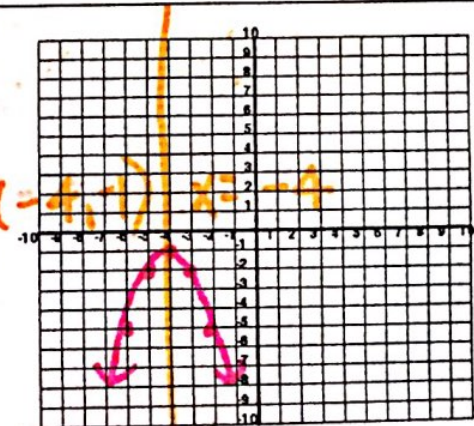
Axis of Symmetry:  $x = -4$

Vertex:  $(-4, -1)$

Domain:  $(-\infty, \infty)$

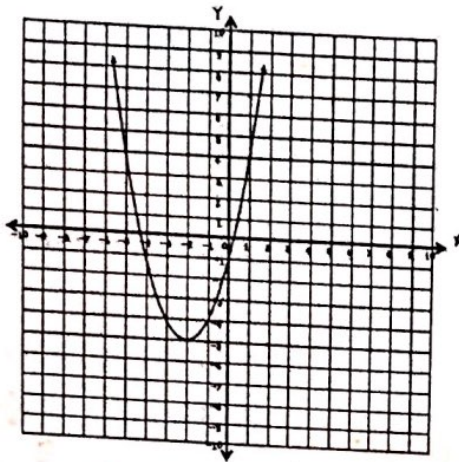
Range:  $(-\infty, -1]$

x	y
-6	-5
-5	-2
-4	-1
-3	-2
-2	-5

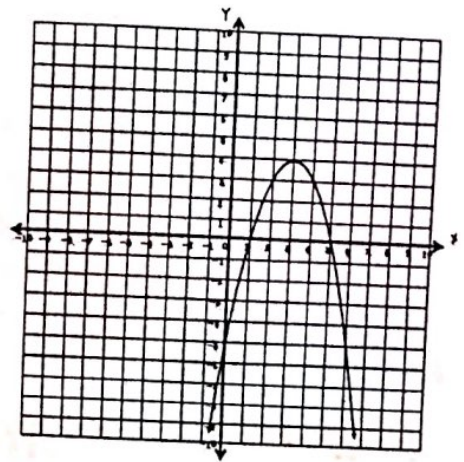


# Analyzing Quadratic Graphs

**GRAPH A**



**GRAPH B**



Answer the questions given the graphs above.

1. What is the axis of symmetry for Graph A?  $x = -2$

2. What is the axis of symmetry for Graph B?  $x = 3$

3. What is the vertex of Graph A?  $(-2, -5)$  Maximum or Minimum? min

4. What is the vertex of Graph B?  $(3, 4)$  Maximum or Minimum? max

5. Identify the domain and range of Graph A.

D:  $(-\infty, \infty)$

R:  $[-5, \infty)$

6. Identify the domain and range of Graph B.

D:  $(-\infty, \infty)$

R:  $(-\infty, 4]$

7. Identify the equation for Graph A:

$\frac{-4}{2(1)} = -2$  ✓

A.  $y = x^2 - 4x - 1$

**B.  $y = x^2 + 4x - 1$**

C.  $y = -x^2 - 4x - 1$

D.  $y = -x^2 + 4x - 1$

8. Identify the equation for Graph B:

$\frac{-6}{2(-1)} = 3$  ✓

A.  $y = x^2 - 6x - 5$

B.  $y = x^2 + 6x - 5$

C.  $y = -x^2 - 6x - 5$

**D.  $y = -x^2 + 6x - 5$**