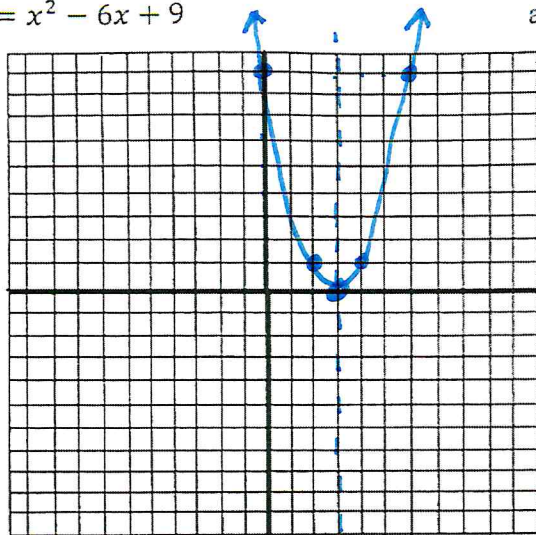


Graphing Quadratics

Key

For each question, answer the following parts and graph each quadratic equation.

1. $y = x^2 - 6x + 9$



a: 1 b: -6 c: 9

Axis of Symmetry: $x = \frac{6}{2(1)} = \frac{6}{2} = 3$

Vertex: $(3)^2 - 6(3) + 9 = 9 - 18 + 9 = 0$ (3, 0)

Maximum or Minimum

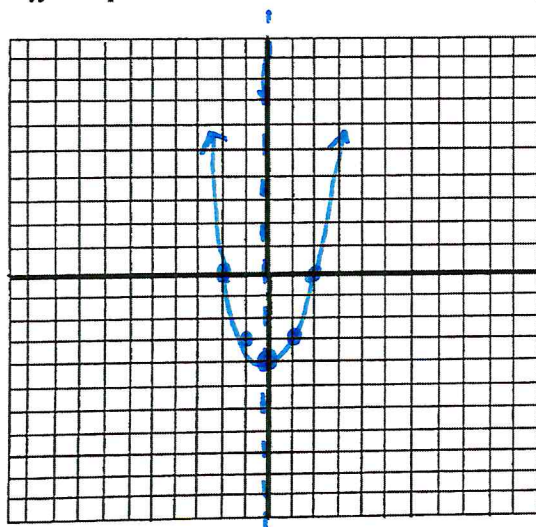
Table of Values:

x	3	0	6	2	4
y	0	9	9	1	1

Roots: $x = 3$

$x = 2$
 $(2)^2 - 6(2) + 9$
 $4 - 12 + 9$
 $-8 + 9$
 1

2. $y = x^2 - 4$



a: 1 b: 0 c: -4

Axis of Symmetry: $\frac{0}{2(1)} = \frac{0}{2} = 0$

Vertex: $(0)^2 - 4 = -4$ (0, -4)

Maximum or Minimum

Table of Values:

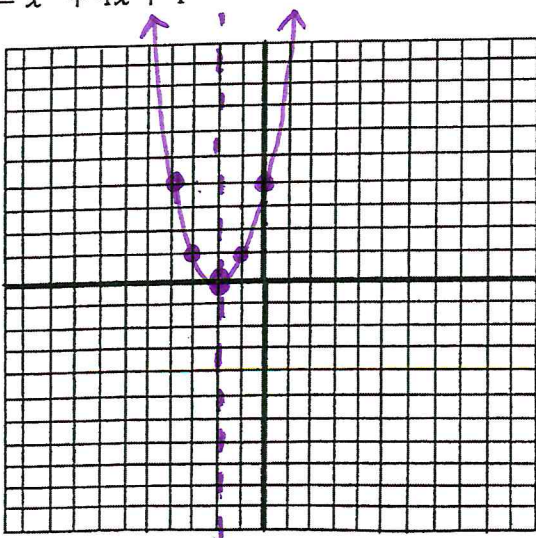
x	0	1	-1	2	-2
y	-4	-3	-3	0	0

Roots: $x = 2, x = -2$

$x = 1$
 $(1)^2 - 4$
 $1 - 4$
 -3
 $(1, -3)$

$x = 2$
 $(2)^2 - 4$
 $4 - 4$
 0
 $(2, 0)$

3. $y = x^2 + 4x + 4$



a: 1 b: 4 c: 4

Axis of Symmetry: $x = \frac{-4}{2(1)} = \frac{-4}{2} = -2$

Vertex: $(-2)^2 + 4(-2) + 4 = 4 - 8 + 4 = 0$

Maximum or Minimum

Table of Values:

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

Roots: $x = -2$

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

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

a: 1

b: -8 c: 15

Axis of Symmetry: $X = \frac{8}{2(1)} = \frac{8}{2} = 4$

Vertex: $(4)^2 - 8(4) + 15 = 16 - 32 + 15 = -1$
 $(4, -1)$

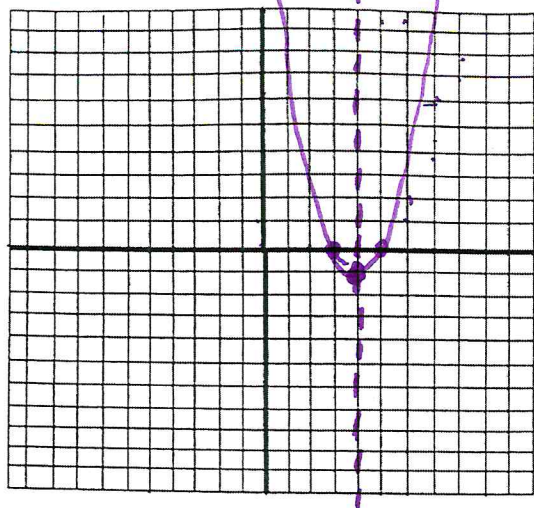
Maximum or Minimum

Table of Values:

x	4	0	8	3	5
y	-1	15	15	0	0

Roots: $X = 3, X = 5$

$X = 3$
 $(3)^2 - 8(3) + 15$
 $9 - 24 + 15$
 0
 $(3, 0)$



5. $y = -2x^2$

a: -2 b: 0 c: 0

Axis of Symmetry: $X = \frac{0}{2(-2)} = \frac{0}{-4} = 0$

Vertex: $-2(0)^2 = -2(0) = 0$ $(0, 0)$

Maximum or Minimum

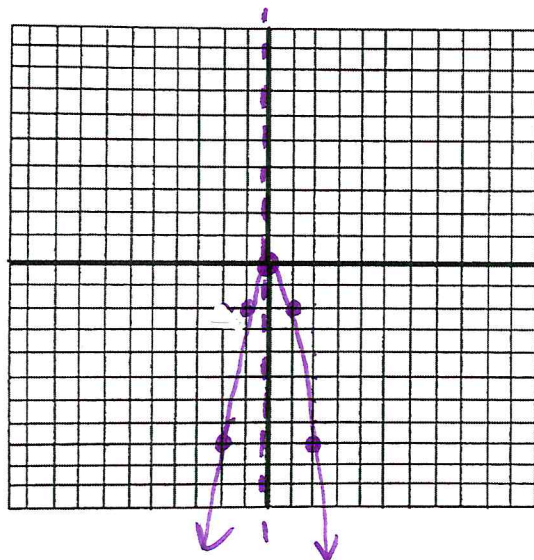
Table of Values:

x	0	1	-1	2	-2
y	0	-2	-2	-8	-8

Roots: $X = 0$

$X = 1$
 $-2(1)^2$
 $-2(1) = -2$
 $(1, -2)$

$X = 2$
 $-2(2)^2$
 $-2(4) = -8$
 $(2, -8)$



6. $y = -x^2 - 6x - 8$

a: -1 b: -6 c: -8

Axis of Symmetry: $X = \frac{6}{2(-1)} = \frac{6}{-2} = -3$

Vertex: $-(-3)^2 - 6(-3) - 8 = -9 + 18 - 8 = 1$
 $(-3, 1)$

Maximum or Minimum

Table of Values:

x	-3	0	-6	-2	-4
y	1	-8	-8	0	0

Roots: $X = -2, X = -4$

$X = -2$
 $-(-2)^2 - 6(-2) - 8$
 $-4 + 12 - 8$
 0
 $(-2, 0)$

