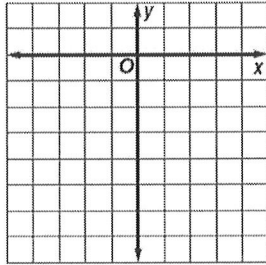# Group 1:
Section 9.1 & 9.2: Graphing parabolas
Find the vertex, axis of symmetry, y-intercept and create a table of values.
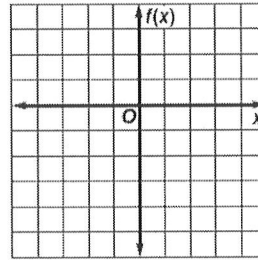
1.

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

2.

$f(x) = -x^2 - 2x + 2$

3. Find the axis of symmetry of $2x^2 + 6x + 1$. It the graph concave up or down?

****

Answers to Group 4:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1. $x^2 - 7x = -3$ $a = 1$ $b = -7$ $c = 3$ (not -3!!)

$$x = \frac{7 \pm \sqrt{(-7)^2 - 4(1)(3)}}{2(1)}$$

$$x = \frac{7 \pm \sqrt{49 - 12}}{2}$$

$$\boxed{x = \frac{7 \pm \sqrt{37}}{2}}$$

2. $x^2 + 4x + 4 = 0$ $a = 1$ $b = 4$ $c = 4$

$$x = \frac{-4 \pm \sqrt{(4)^2 - 4(1)(4)}}{2(1)}$$

$$x = \frac{-4 \pm \sqrt{16 - 16}}{2}$$

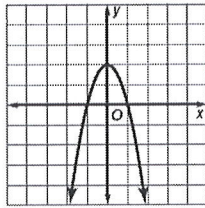$$x = \frac{-4 \pm \sqrt{0}}{2} \qquad x = \frac{-4 \pm 0}{2}$$

x = -2 (one solution)

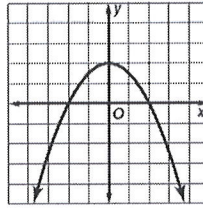## Group 2:
Section 9.1-9.2 Graphing
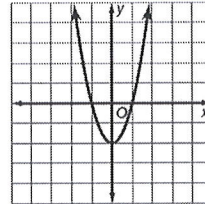
1. Match each equation to its graph.

$y = 2x^2 - 2$

$y = \frac{1}{2}x^2 - 2$

$y = -\frac{1}{2}x^2 + 2$

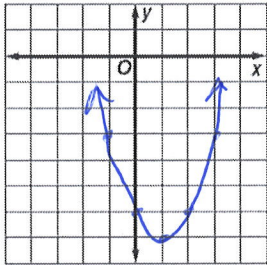$y = -2x^2 + 2$

A.

C.

B

D.
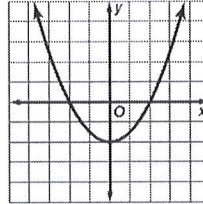
2. Find the vertex of $-x^2 + 2x + 6$, is the vertex a max or min?

****

Answers to Group 1:

1.

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

x	y
-1	-3
0	-6
1	-7
2	-6
3	-3

2.

$f(x) = -x^2 - 2x + 2$
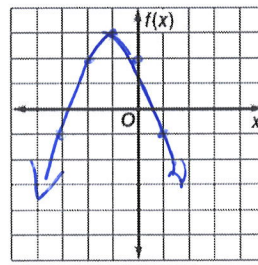
x	y
-3	-1
-2	2
-1	3
0	2
1	-1

AOS: $x = \dfrac{-b}{2a} = \dfrac{2}{2(1)} = 1$

Y-intercept: (0, -6)

Vertex: (1, -7)

AOS: $x = \dfrac{-b}{2a} = \dfrac{2}{2(-1)} = -1$

Y-intercept: (0, 2)

Vertex: (-1, 3)

3. Find the axis of symmetry of $2x^2 + 6x + 1$. It the graph concave up or down?

Axis of symmetry $x = \dfrac{-b}{2a} = \dfrac{-6}{2(2)} = \dfrac{-6}{4} = -\dfrac{3}{2}$

The graph is concave up. (opens up)
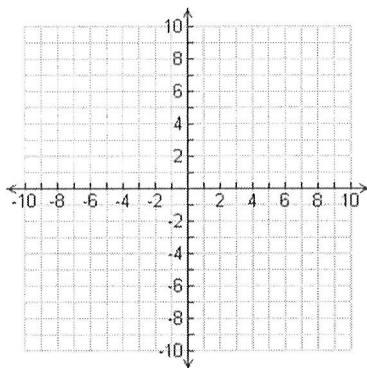
Group 3:

Section 9.5: Quadratic Formula

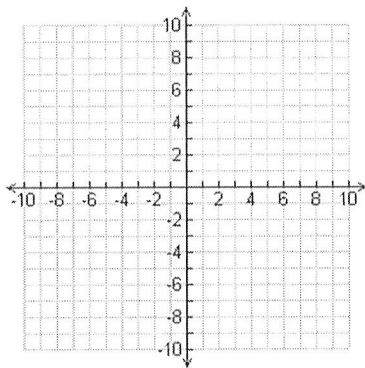Find the number of solutions by using the discriminant:

1. $x^2 + 4x - 12 = 0$

2. $-x^2 + 6x = 10$

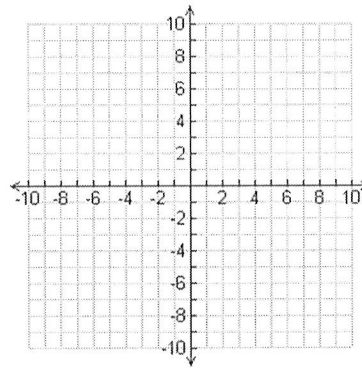Sketch an example of a graph that has the following number of solutions:

3 One solution

4. No Real Solution

5. Two Solutions

****

Answers to Group 2:

2. Matching

A. $y = -\dfrac{1}{2}x^2 + 2$ B. $y = \dfrac{1}{2}x^2 - 2$ C. $y = -2x^2 + 2$ D. $y = 2x^2 - 2$

3. Find the vertex of $-x^2 + 2x + 6$, is the vertex a max or min?

x point of vertex: $x = \dfrac{-b}{2a} = \dfrac{-2}{2(-1)} = 1$

y point of vertex: $-(1)^2 + 2(1) + 6 = 7$

Vertex: (1, 7) is a max point

Group 4:

Section 9.5: Quadratic Formula

Solve by using the quadratic formula

1. $x^2 - 7x = -3$

2. $x^2 + 4x + 4 = 0$

****

Answers to Group 3:

1.

2.

$$b^2 - 4ac$$

$$(4)^2 - 4(1)(-12)$$

$$16 + 48$$

$$64$$
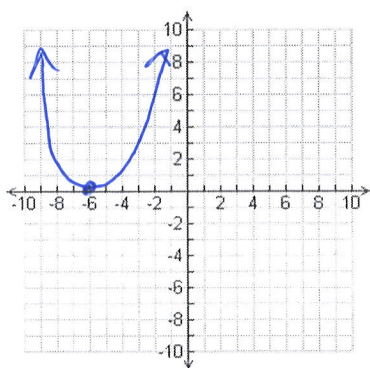
2 solutions

$$b^2 - 4ac$$
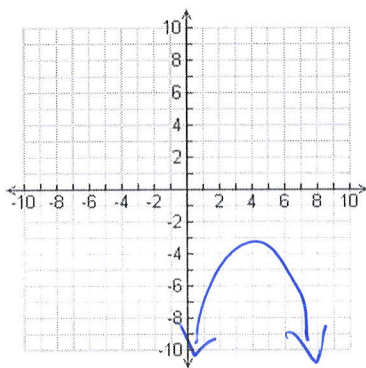
$$(6)^2 - 4(-1)(-10)$$

$$36 - 40$$

$$-4$$

No Real Solution

3   One solution

4. No Real Solution

5. Two Solutions