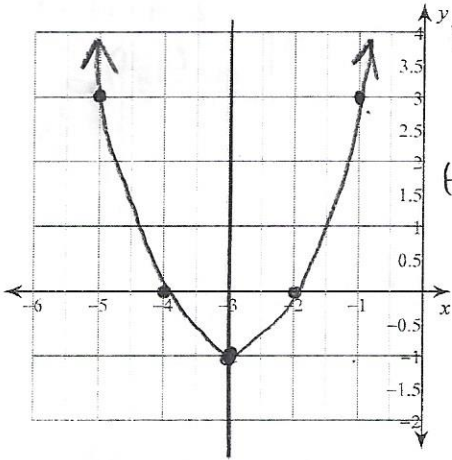


Graphing Quadratics - Standard Form Day 1

Graph each function and fill out the table.

1) $f(x) = x^2 + 6x + 8$



$$X = \frac{-6}{2(1)} = -3$$

$$X = -3$$

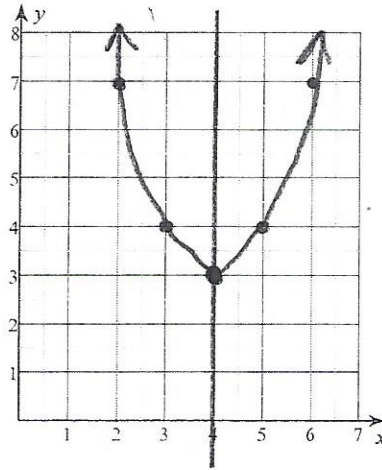
$$(-3)^2 + 6(-3) + 8$$

$$9 - 18 + 8 = -1$$

$$(-3, -1)$$

X	Y
-2	$4 - 12 + 8 = 0$
-1	$1 - 6 + 8 = 3$

2) $f(x) = x^2 - 8x + 19$



$$X = \frac{8}{2(1)} = 4$$

$$X = 4$$

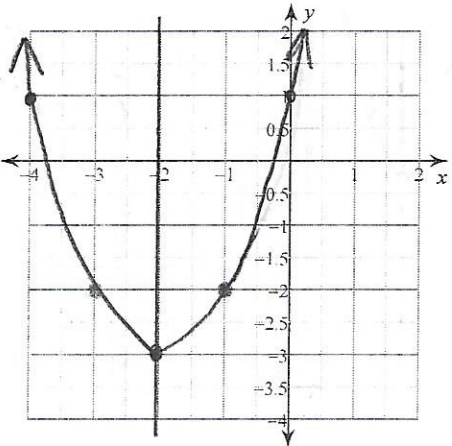
$$(4)^2 - 8(4) + 19$$

$$16 - 32 + 19 = 3$$

$$(4, 3)$$

X	Y
3	$(3)^2 - 8(3) + 19 = 4$
2	$(2)^2 - 8(2) + 19 = 7$

3) $f(x) = x^2 + 4x + 1$



$$X = \frac{-4}{2(1)} = -2$$

$$X = -2$$

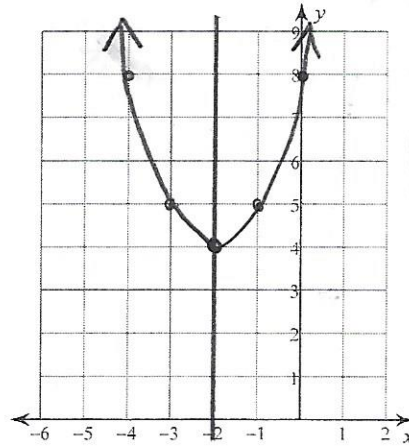
$$(-2)^2 + 4(-2) + 1$$

$$4 - 8 + 1 = -3$$

$$(-2, -3)$$

X	Y
-1	$(-1)^2 + 4(-1) + 1 = -2$
0	1

4) $f(x) = x^2 + 4x + 8$



$$X = \frac{-4}{2(1)} = -2$$

$$X = -2$$

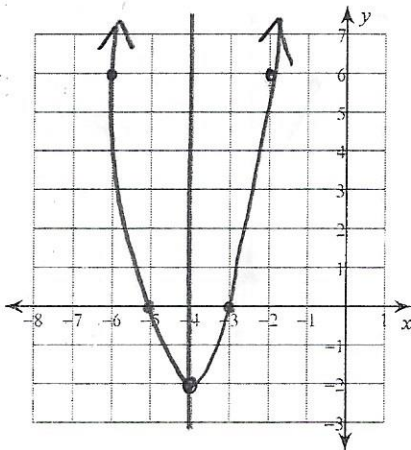
$$(-2)^2 + 4(-2) + 8 =$$

$$4 - 8 + 8 = 4$$

$$(-2, 4)$$

X	Y
-1	$(-1)^2 + 4(-1) + 8 = 5$
0	8

5) $f(x) = 2x^2 + 16x + 30$



$$X = \frac{-16}{2(2)} = \frac{-16}{4}$$

$$X = -4$$

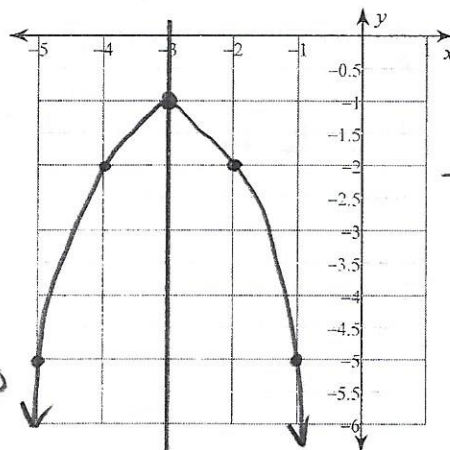
$$2(-4)^2 + 16(-4) + 30$$

$$32 - 64 + 30 = -2$$

$$(-4, -2)$$

X	Y
-3	$2(-3)^2 + 16(-3) + 30 = 0$
-2	$2(-2)^2 + 16(-2) + 30 = 6$

6) $f(x) = -x^2 - 6x - 10$



$$X = \frac{6}{2(-1)} = \frac{6}{-2} = -3$$

$$X = -3$$

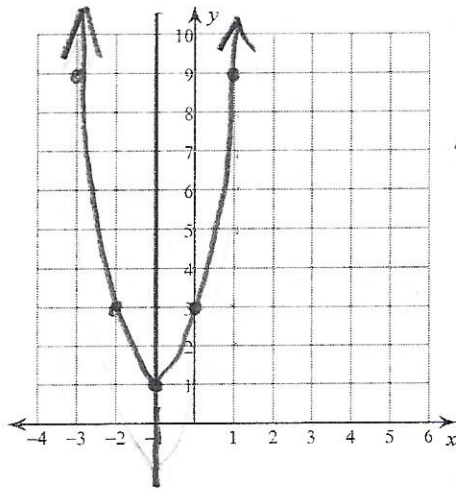
$$-(-3)^2 - 6(-3) - 10$$

$$-9 + 18 - 10 = -1$$

$$(-3, -1)$$

X	Y
-2	$-(-2)^2 - 6(-2) - 10 = -2$
-1	$-(-1)^2 - 6(-1) - 10 = -5$

7) $f(x) = 2x^2 + 4x + 3$



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

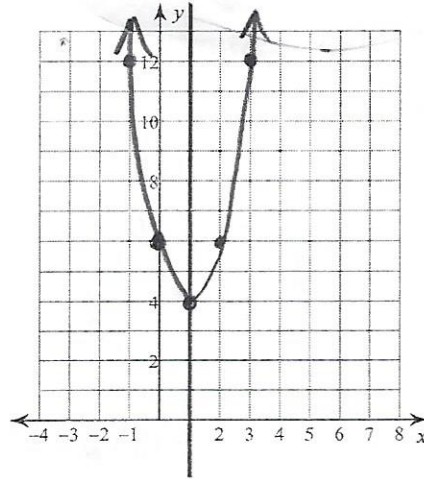
$$x = -1$$

$$2(-1)^2 + 4(-1) + 3$$

$$2 - 4 + 3 = 1$$

$$(-1, 1)$$

8) $f(x) = 2x^2 - 4x + 6$



$$x = \frac{4}{2(2)} = \frac{4}{4} = 1$$

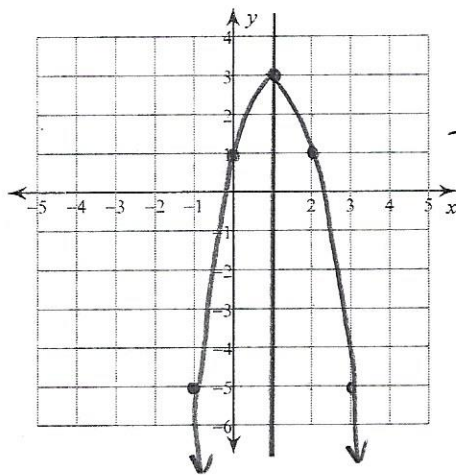
$$x = 1$$

$$2(1)^2 - 4(1) + 6$$

$$2 - 4 + 6 = 4$$

$$(1, 4)$$

9) $f(x) = -2x^2 + 4x + 1$



$$x = \frac{-4}{2(-2)} = \frac{-4}{-4}$$

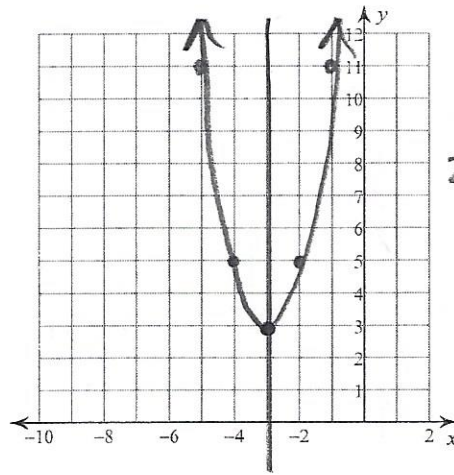
$$x = 1$$

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

$$-2 + 4 + 1 = 3$$

$$(1, 3)$$

10) $f(x) = 2x^2 + 12x + 21$



$$x = \frac{-12}{2(2)} = \frac{-12}{4} = -3$$

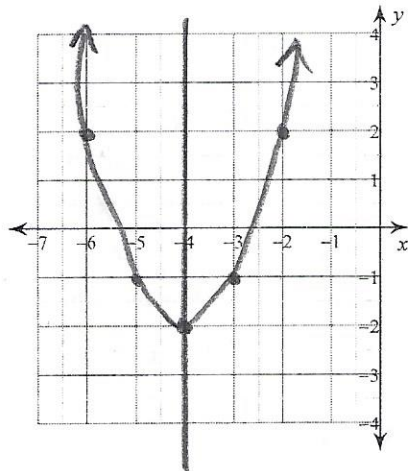
$$x = -3$$

$$2(-3)^2 + 12(-3) + 21$$

$$18 - 36 + 21 = 3$$

$$(-3, 3)$$

11) $f(x) = x^2 + 8x + 14$



$$x = \frac{-8}{2(1)} = \frac{-8}{2} = -4$$

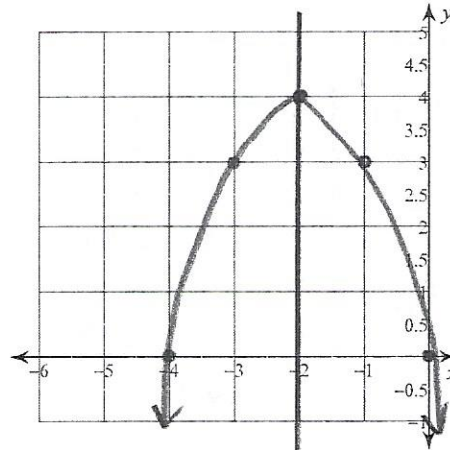
$$x = -4$$

$$(-4)^2 + 8(-4) + 14$$

$$16 - 32 + 14 = -2$$

$$(-4, -2)$$

12) $f(x) = -x^2 - 4x$



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

$$x = -2$$

$$-(-2)^2 - 4(-2)$$

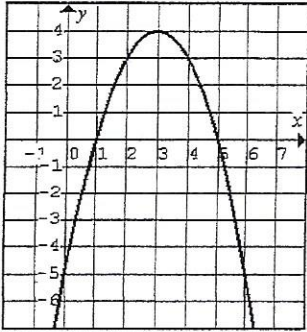
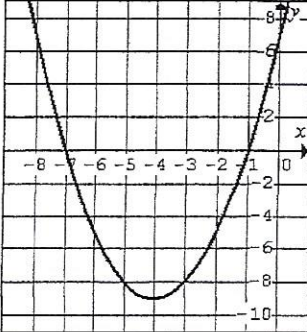
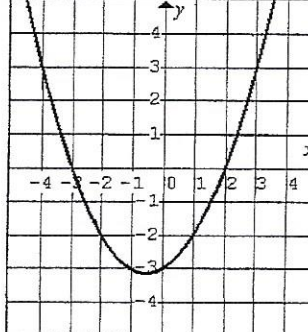
$$-4 + 8 = 4$$

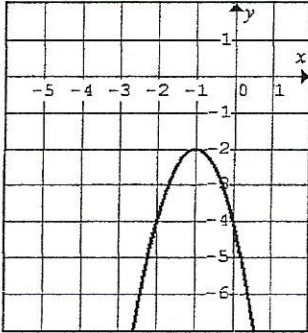
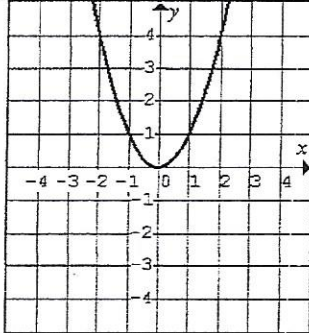
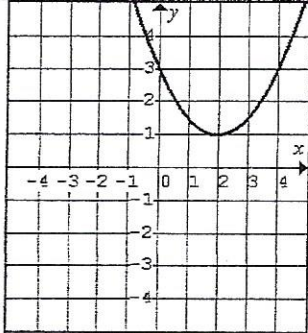
$$(-2, 4)$$

	Vertex	Max/min value	AOS	Zero(s)	Direction of opening	y-intercept	Domain	Range
1	$(-3, -1)$	min = -1 @ $x = -3$	$x = -3$	$x = -4, -2$ $\{-4, -2\}$	up	$(0, 8)$	$(-\infty, \infty)$	$[-1, \infty)$
2	$(4, 3)$	min = 3 @ $x = 4$	$x = 4$	NS	up	$(0, 19)$	$(-\infty, \infty)$	$[3, \infty)$
3	$(-2, -3)$	min = -3 @ $x = -2$	$x = -2$	$x = -5, -3.5$	up	$(0, 1)$	$(-\infty, \infty)$	$[-3, \infty)$
4	$(-2, 4)$	min = 4 @ $x = -2$	$x = -2$	NS	up	$(0, 8)$	$(-\infty, \infty)$	$[4, \infty)$
5	$(-4, -2)$	min = -2 @ $x = -4$	$x = -4$	$x = -3, -5$	up	$(0, 30)$	$(-\infty, \infty)$	$[-2, \infty)$
6	$(-3, -1)$	max = -1 @ $x = -3$	$x = -3$	NS	DOWN	$(0, -10)$	$(-\infty, \infty)$	$(-\infty, -1]$

Identifying Parts of a Parabola Worksheet

For each of the following parabolas, identify the following properties:

Parabola Graph			
Vertex	$(3, 4)$	$(-4, -9)$	$(-5, -3.25)$
Max/min value	$\text{max} = 4$	$\text{min} = -9$	$\text{min} = -3.25$
Axis of Symmetry	$x = 3$	$x = -4$	$x = -5$
Zero(s)	$1, 5$	$-1, -7$	$2, -3$
Direction of Opening	Down	Up	Up
y-intercept	$(0, -6)$	$(0, 6)$	$(0, -3)$

Parabola Graph			
Vertex	$(-1, -2)$	$(0, 0)$	$(2, 1)$
Max/min value	$\text{max} = -2$	$\text{min} = 0$	$\text{min} = 1$
Axis of Symmetry	$x = -1$	$x = 0$	$x = 2$
Zero(s)	No Solution	0	No Solution
Direction of Opening	Down	Up	Up
y-intercept	$(0, -4)$	$(0, 0)$	$(0, 3)$