

# Graphing in Vertex & Standard Form Homework

Name: Key

Date: \_\_\_\_\_ Block: \_\_\_\_\_

1.  $y = x^2 - 3$

$a = 1$   $b = 0$   $c = -3$

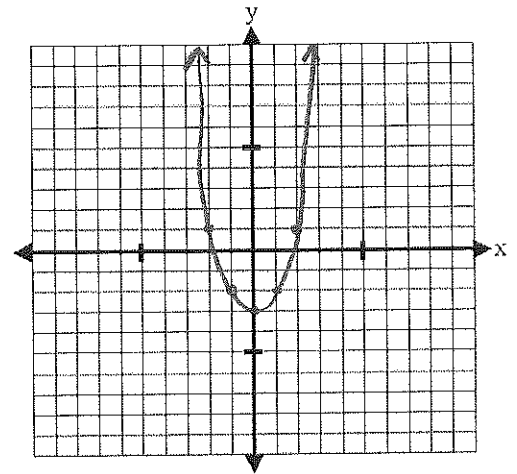
UP or DOWN

Vertex =  $(0, -3)$

AOS:  $x = 0$

y-intercept:  $(0, -3)$

D:  $(-\infty, \infty)$  R:  $[-3, \infty)$



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

$a = -1$   $b = 0$   $c = 5$

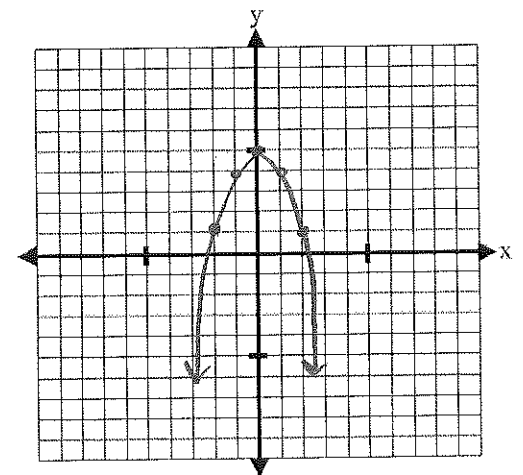
UP or DOWN

Vertex =  $(0, 5)$

AOS:  $x = 0$

y-intercept:  $(0, 5)$

D:  $(-\infty, \infty)$  R:  $(-\infty, 5]$



3.  $y = x^2 - 4x - 5$

$a = 1$   $b = -4$   $c = -5$

UP or DOWN

Vertex =  $(2, -9)$

AOS:  $x = 2$

y-intercept:  $(0, -5)$

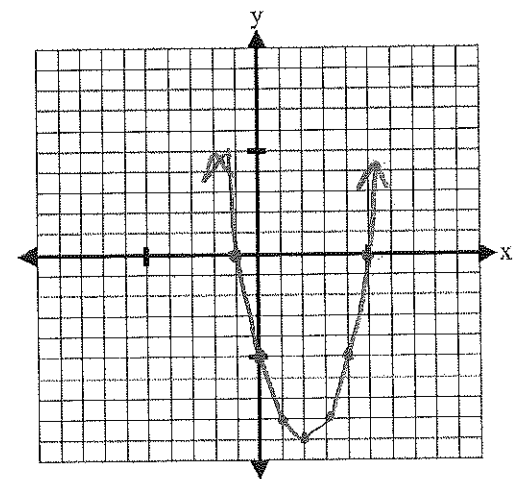
D:  $(-\infty, \infty)$  R:  $[-9, \infty)$

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

$$y = (2)^2 - 4(2) - 5$$

$$y = -9$$

$$y = (0)^2 - 4(0) - 5$$



4.  $y = 2x^2 + 12x + 10$

$a = 2$   $b = 12$   $c = 10$

UP or DOWN

Vertex =  $(-3, -8)$

AOS:  $X = -3$

y-intercept:  $(0, 10)$

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

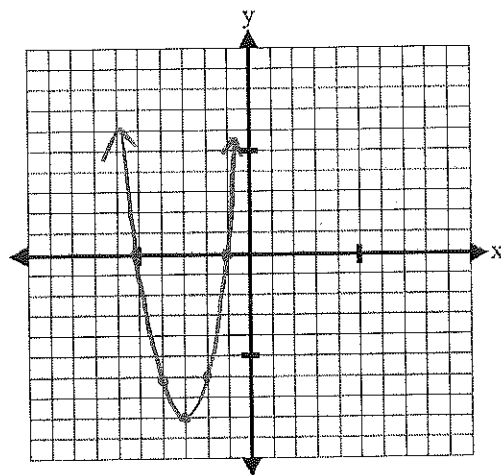
$X = \frac{-12}{2(2)} = -3$

$y = 2(-3)^2 + 12(-3) + 10$

$y = 18 - 36 + 10$

$y = 2(0)^2 + 12(0) + 10$

R:  $[-8, \infty)$



5.  $y = 3x^2 - 6x + 4$

$a = 3$   $b = -6$   $c = 4$

UP or DOWN

Vertex =  $(1, 1)$

AOS:  $X = 1$

y-intercept:  $(0, 4)$

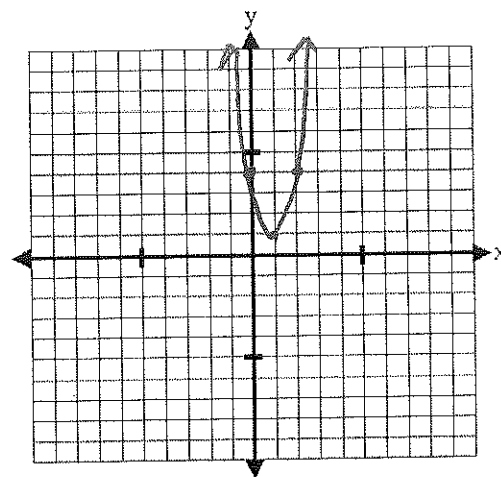
D:  $(-\infty, \infty)$

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

$y = 3(1)^2 - 6(1) + 4$

$y = 3 - 6 + 4$

R:  $[1, \infty)$



6.  $y = -2x^2$

$a = -2$   $b = 0$   $c = 0$

UP or DOWN

Vertex =  $(0, 0)$

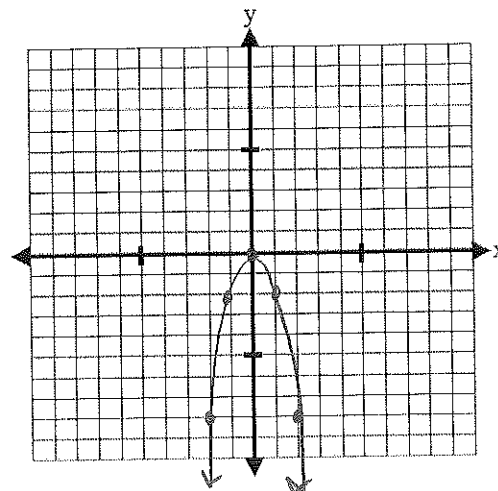
AOS:  $X = 0$

y-intercept:  $(0, 0)$

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

$X = \frac{0}{2(-2)} = 0$

R:  $(-\infty, 0]$



7.  $y = -x^2 + 2x + 3$

$a = -1$   $b = 2$   $c = 3$

UP or DOWN

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

Vertex = (1, 4)

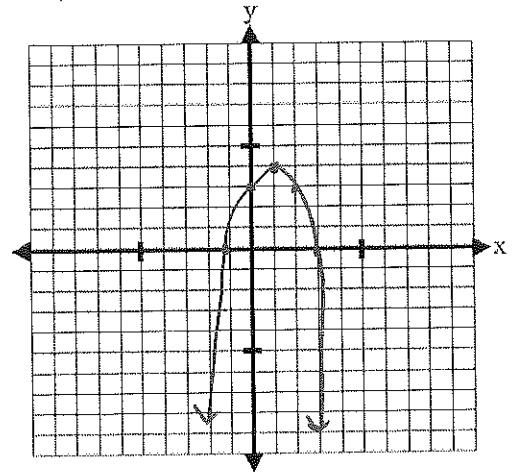
$y = -(1)^2 + 2(1) + 3$

AOS:  $x = 1$

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

y-intercept: (0, 3)

D:  $(-\infty, \infty)$  R:  $(-\infty, 4]$



8.  $y = -2x^2 + 8x - 5$

$a = -2$   $b = 8$   $c = -5$

UP or DOWN

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

Vertex = (2, 3)

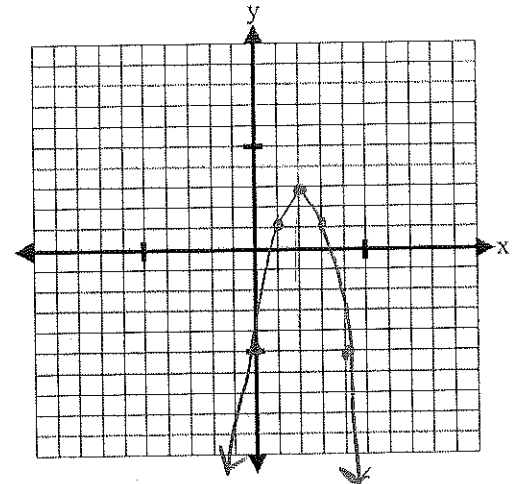
$y = -2(2)^2 + 8(2) - 5$

AOS:  $x = 2$

$y = -8 + 16 - 5$

y-intercept: (0, -5)

D:  $(-\infty, \infty)$  R:  $(-\infty, 3]$



9.  $y = 3(x+1)^2 - 2$

$y = 3(x+1)(x+1) - 2$

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

$a = 3$   $b = 6$   $c = 1$

$y = 3x^2 + 6x + 1$

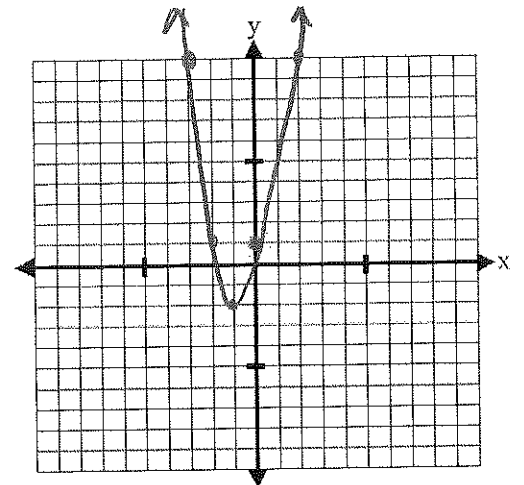
UP or DOWN

Vertex = (-1, -2)

AOS:  $x = -1$

y-intercept: (0, 1)

D:  $(-\infty, \infty)$  R:  $[-2, \infty)$



10.  $y = -2(x - 3)^2 + 8$

$y = -2(x-3)(x-3) + 8$       $y = -2x^2 + 12x - 10$

$y = -2(x^2 - 6x + 9) + 8$

$a = -2$     $b = 12$     $c = -10$

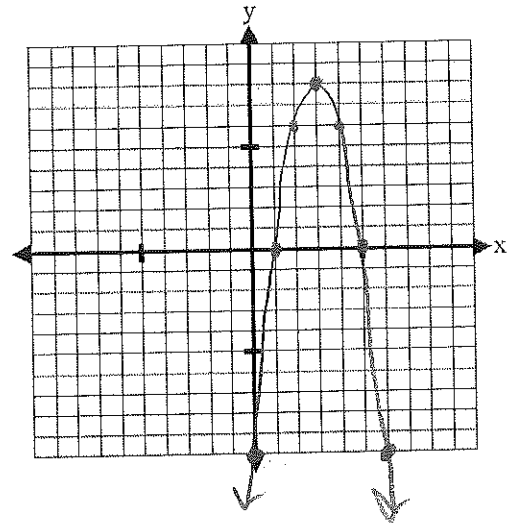
UP or DOWN

Vertex = (3, 8)

AOS:  $x = 3$

y-intercept: (0, -10)

D:  $(-\infty, \infty)$      R:  $(-\infty, 8]$



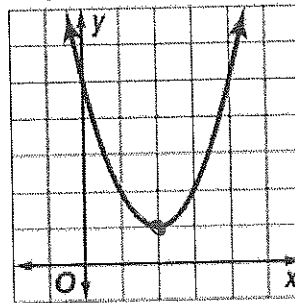
11. Which equation corresponds to the graph at the right?

a.  $y = x^2 - 4x + 5$

b.  $y = -x^2 + 4x + 5$

c.  $y = x^2 - 4x - 5$

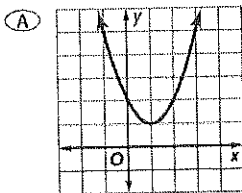
d.  $y = -x^2 + 4x - 5$



$V = (2, 1)$   
opens up  $a = +$   
y-int (0, 5)

12.

Which is the graph of  $y + 1 = (x + 1)^2$ ?



$y = (x+1)^2 - 1$   
 $V = (-1, -1)$   
opens up

