Key

Graphing Quadratics Review

Use vertex form to write a quadratic equation from given points

Use each table to write a quadratic function in vertex form, $y = a(x - h)^2 + k$. Then rewrite the function in standard form, $y = ax^2 + bx + c$.

The vertex of the parabola is (2, 5).

x	y
−1	59
1	11
2	5
3	11
5	59

$y = a(x-2)^2 + 5$
$11 = a(1-2)^2 + 5$
$11 = a + 5$
$6 = a$
$y = 6(x-2)^2 + 5$
$y = 6(x-2)(x-2) + 5$
$6(x^2 - 4x + 4) + 5$
$6x^2 - 24x + 24 + 5$
$y = 6x^2 - 24x + 29$

The vertex of the parabola is (−2, −7).

x	y
0	−27
−1	−12
−2	−7
−3	−12
−4	−27

$y = a(x+2)^2 - 7$
$-27 = 4a - 7$
$-20 = 4a$
$-5 = a$
$y = -5(x+2)^2 - 7$
$y = -5(x+2)(x+2) - 7$
$y = -5(x^2 + 4x + 4) - 7$
$y = -5x^2 - 20x - 20 - 7$
$y = -5x^2 - 20x - 27$

The vertex of the function is (6, −8).

x	y
10	24
8	0
6	−8
4	0
2	24

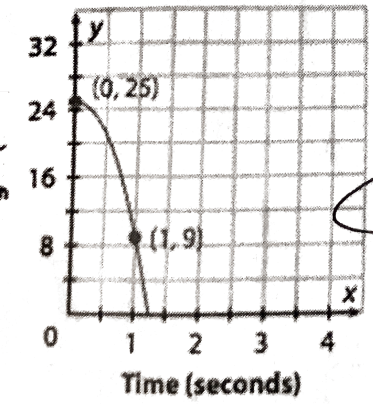
$y = a(x-6)^2 - 8$
$0 = a(2)^2 - 8$
$0 = 4a - 8$
$8 = 4a$
$2 = a$
$y = 2(x-6)^2 - 8$
$y = 2(x-6)(x-6) - 8$
$2(x^2 - 12x + 36) - 8$
$2x^2 - 24x + 72 - 8$
$y = 2x^2 - 24x + 64$

The vertex of the function is (4, 7).

x	y
0	−1
2	5
4	7
6	5
8	−1

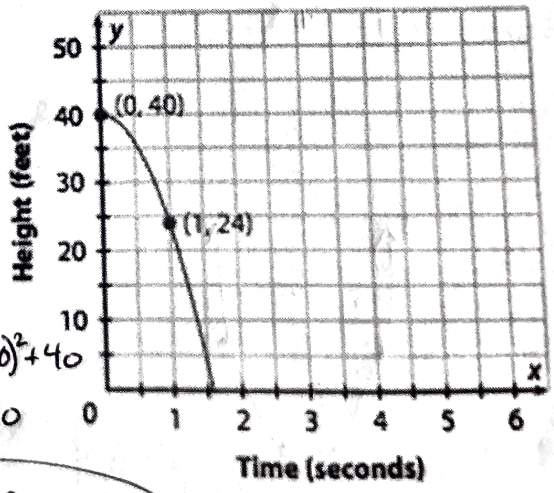
$y = a(x-4)^2 + 7$
$-1 = a(-4)^2 + 7$
$-1 = 16a + 7$
$-8 = 16a$
$-\frac{1}{2} = a$
$y = -\frac{1}{2}(x-4)^2 + 7$
$y = -\frac{1}{2}(x^2 - 8x + 16) + 7$
$-\frac{1}{2}x^2 + 4x - 8 + 7$
$y = -\frac{1}{2}x^2 + 4x - 1$

ouse painter standing on a ladder drops a paintbrush, which to the ground. The paintbrush's height above the ground (in is given by a function of the form $f(t) = a(t - h)^2$ where t is ime (in seconds) after the paintbrush is dropped.



$y = a(x-0)^2 + 25$
$9 = a(1)^2 + 25$
$a = -16$
$y = -16x^2 + 25$

A rock is knocked off a cliff into the water far below. The falling rock's height above the water (in feet) is given by a function of the form $f(t) = a(t - h)^2 + k$ where t is the ti (in seconds) after the rock begins to fall.



$y = a(t-0)^2 + 40$
$24 = a + 40$
$-16 = a$
$y = -16t^2 + 40$

Meias Middle

5th Period /PLT

Graphing Quadratics Review

1) $y = -2(x-1)^2 + 5$

Axis of Symmetry is $x =$ 1

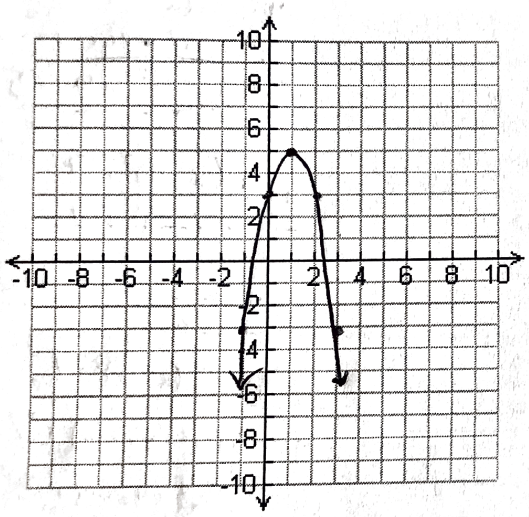
Vertex: (1 , 5)

Opens up or down?

Find pts 1 unit L/R of vertex:

(0 , 3) and (2 , 3)

y-intercept : (0, 3)



2) $y = 2x^2 - 8x + 6$ a= 2 b= -8 c= 6

Opens up or down?

Is vertex a max or min? because it opens up

Y-intercept: (0, 6)

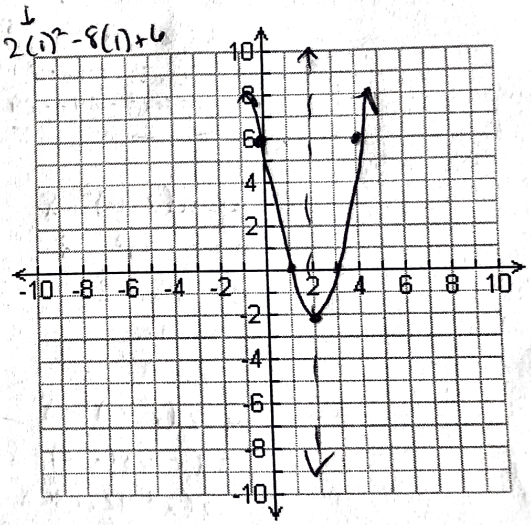
Axis of Symmetry is x= 2 $\frac{-(-8)}{2(2)} = \frac{8}{4} = 2$

Vertex: (2 , -2) $2(2)^2 - 8(2) + 6$ $8 - 16 + 6$

Find pts 1 unit L/R of vertex at

(1 , 0) and (3 , 0)

$2(1)^2 - 8(1) + 6$



3) $y = \frac{1}{2}(x-3)(x+3)$

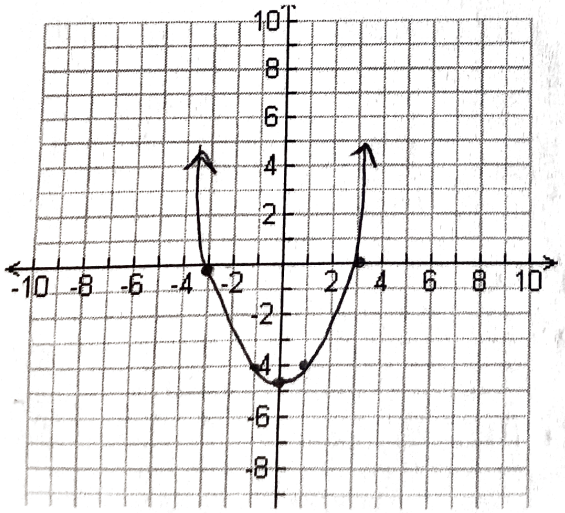
x-intercepts: (3 , 0) (-3 , 0)

Axis of Symmetry is x= 0

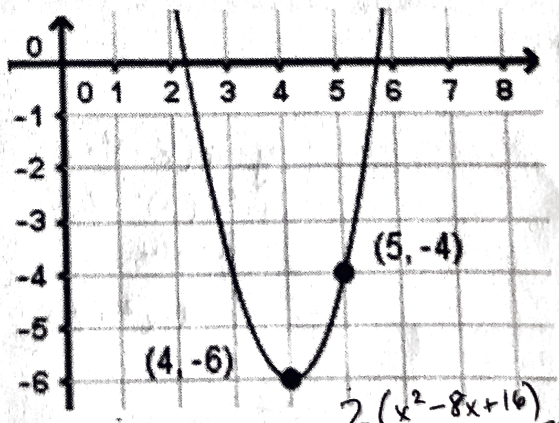
Vertex: (0 , -4.5)

y-intercept: (0, -4.5)

Extra point: (1 , -4)



4) Write each equation



$2(x^2 - 8x + 16) - 6$

$2x^2 - 16x + 32 - 6$

Standard Form: $y = 2x^2 - 16x + 26$

Vertex Form: $y = 2(x-4)^2 - 6$

~~Intercept Form:~~