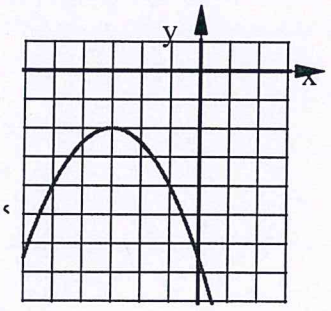
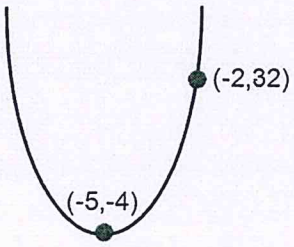
Bellwork Alg 2 Wednesday, September 26, 2018

1. Rewrite this Quadratic Equation into Standard Form. $y = -2(x + 6)^2 - 11$

2. Write the equation of this quadratic in Vertex Form.




3. Write the equation of this quadratic in Standard Form.




4. A ball is shot upwards from the top of a 20 foot tall house with an initial velocity of 160 ft/sec. The following equation models the height (ft) of the ball as a function of time (sec). $h(t) = -16t^2 + 160t + 20$

a) Find the maximum height of the ball.

b) How long does it take the ball to reach the maximum height?

5. The following equation models the cost ($C$) of producing components for an engine as a function of the number of workers ($w$) on the shift. $C(w) = 3.4(w - 7)^2 + 4850$

a) Find the number of workers that should be scheduled in order to minimize the costs.

b) Find the minimum costs.

Bellwork Alg 2 Wednesday, September 26, 2018 ANSWERS

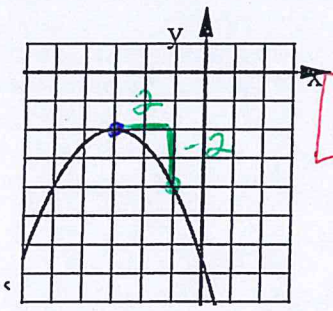
1. Rewrite this Quadratic Equation into Standard Form. $y = -2(x+6)^2 - 11$

$= -2(x^2+12x+36) - 11$

$= -2x^2 - 24x - 72 - 11$

$y = -2x^2 - 24x - 83$

2. Write the equation of this quadratic in Vertex Form.



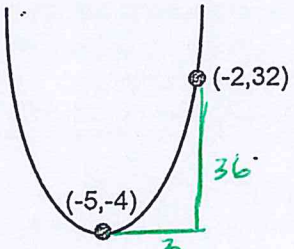

VERTEX $(h, k)$ $(-3, -2)$

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

THIS FUNCTION Parent function

2 | -2 | 4 | 2 $\quad a = \frac{-2}{4} = -\frac{1}{2}$

3. Write the equation of this quadratic in Standard Form.




VERTEX: $(-5, -4)$

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

$y = 4(x^2+10x+25) - 4$

$= 4x^2 + 40x + 100 - 4$

$y = 4x^2 + 40x + 96$

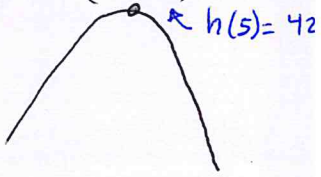
THIS FUNCTION Parent function

3 | 36 | 3 | 9 $\quad a = \frac{36}{9} = 4$

4. A ball is shot upwards from the top of a 20 foot tall house with an initial velocity of 160 ft/sec. The following equation models the height (ft) of the ball as a function of time (sec). $h(t) = -16t^2 + 160t + 20$

a) Find the maximum height of the ball. 420 ft

LOS: $x = \frac{-160}{2(-16)} = 5$ $\quad (t, h)$ $\quad (5, 420)$




b) How long does it take the ball to reach the maximum height?

5 sec

5. The following equation models the cost ($C$) of producing components for an engine as a function of the number of workers ($w$) on the shift. $C(w) = 3.4(w-7)^2 + 4850$

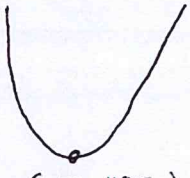
Vertex Form: Vertex $(7, 4850)$

a) Find the number of workers that should be scheduled in order to minimize the costs.

7. workers

b) Find the minimum costs.

min costs 4850



$(7, 4850)$

$(w, c)$