Math II   Graphing Quadratics in Standard Form Applications

$A = -16 \quad B = 24 \quad C = 16$

1. The path of a hamster performing stunts by jumping off of high places is given by the equation $y = -16t^2 + 24t + 16$ where "y" is the vertical height in feet and "t" is time in seconds.

That said, do the following....

Vertex (x, y)

- State if the graph has a minimum or a maximum.

$$\frac{-B}{2A} \quad \frac{-(24)}{2(-16)} \quad \boxed{\frac{-24}{-32}}$$

$A = -16$ Maximum

- State the coordinate of the minimum or maximum and state what it means in reference to the scenario.

$x \rightarrow$
$.75 \rightarrow$ plug in to find y

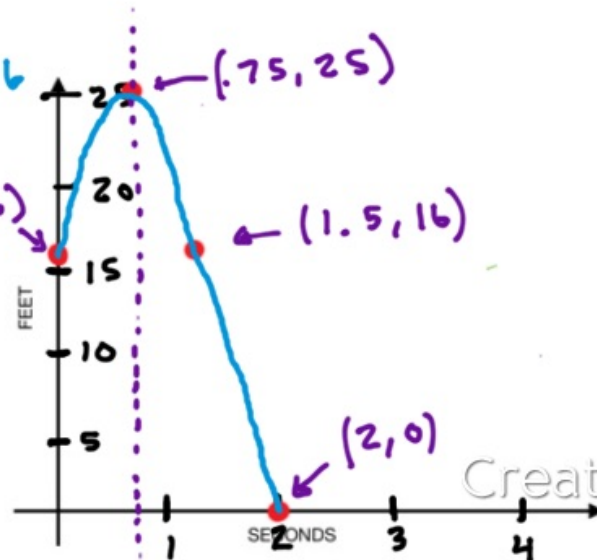$(.75, 25)$

- State the coordinate of y-intercept and state what it mean in reference to the scenario.

$(0, 16)$ At 0 seconds, 16 ft in the air

$\rightarrow -16(0)^2 + 24(0) + 16$

16

- Graph the scenario below. Use a SKETCH and LABEL all point you used.

$-16(.75)^2 + 24(.75) + 16$

$-9 + 18 + 16$

$25 \leftarrow y$

vertex $= (.75, 25)$

$(0, 16)$

$\leftarrow (.75, 25)$

$\leftarrow (1.5, 16)$

$(2, 0)$

FEET / SECONDS graph with points (0,16), (.75,25), (1.5,16), (2,0)

S.P.

$-16(2)^2 + 24(2) + 16$

$-64 + 48 + 16$

0

$(2, 0)$

1. The path of a hamster diving into water is given by the equation $y = \frac{1}{2}x^2 - 6x$ where "y" is the vertical height in feet and "x" is horizontal distance in feet. That said, do the following....

Vertex

$$\frac{-B}{2A} \qquad \frac{-(-6)}{2(\frac{1}{2})} \qquad \frac{6}{1}$$

- State if the graph has a minimum or a maximum.

  $A = \frac{1}{2}$ ⋃ Minimum

$X = 6$
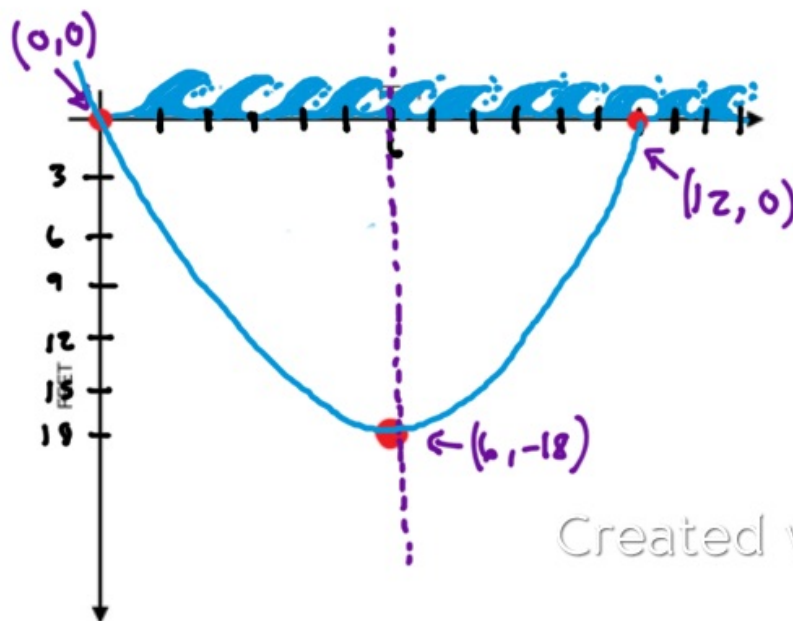
- State the coordinate of the minimum or maximum and state what it means in reference to the scenario.

  Vertex $= (6, -18)$

$$\frac{1}{2}(6)^2 - 6(6)$$

$$18 - 36$$

- State the coordinate of y-intercept and state what it mean in reference to the scenario.

  $\frac{1}{2}(0)^2 - 6(0) = 0 \qquad (0,0)$ Starts 0 ft in the air

$$y = -18$$

$$(6, -18)$$

- Graph the scenario below. Use a SKETCH and LABEL all point you used.

(0,0)

(12, 0)

3
6
9
12
15
19

FEET

←(6, -18)