

Warm Up

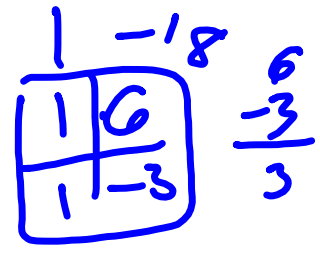
Solve using any method

1) $m^2 - 18 = -3m$

$m^2 + 3m - 18 = 0$

$m + 6 = 0$
 $m = -6$

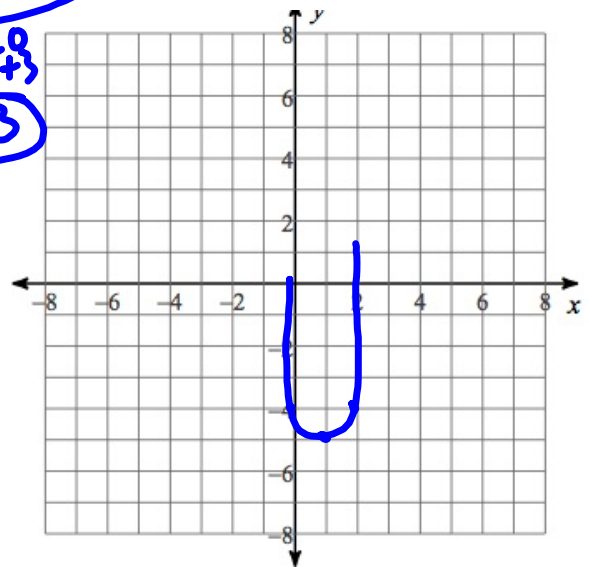
$m + 3 = 0$
 $m = -3$



Graph

S: 1 V: ~~(1, -5)~~
 A.S.I

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



Quiz - Graph in vertex form

Identify the vertex

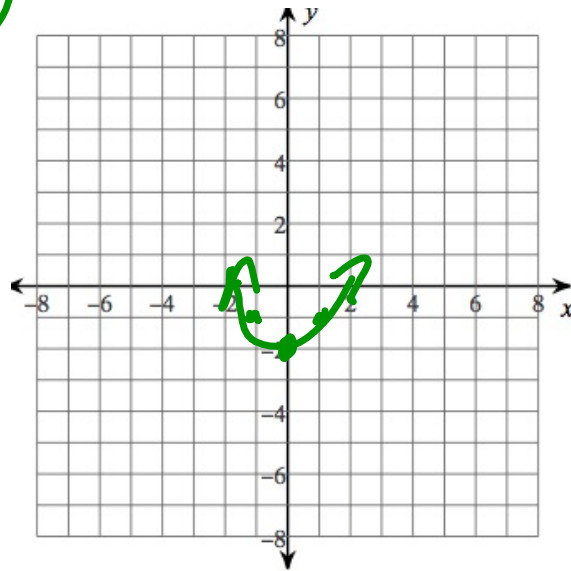
1) $f(x) = (x - 9)^2 + 9$

$$V = (9, 9)$$

Graph the equation

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

$$V = (0, -2)$$



5-3 Graphing quadratics in Standard form

Objective

- I can identify the vertex and axis of symmetry in a quadratic equation in Standard Form.
- I can graph a quadratic equation in Standard Form.

Identify the vertex and axis of symmetry

$$f(x) = 3x^2 + 6x + 2 \quad \frac{-b}{2a}$$

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

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

$$= -1$$

$$V = (-1, -1)$$

$$A.S = -1$$

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

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

$$y = -\frac{1}{4}(2)^2 + 2 - 4$$

$$= -3$$

$$V = (2, -3)$$

$$A.S = 2$$

You Try! Identify the vertex and axis of symmetry

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

$$\frac{-b}{2a}$$

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

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

$$v = (-1, 1)$$

$$A.S. = -1$$

$$f(x) = -x^2 + 12x - 39$$

$$x = \frac{-12}{2(-1)} = 6$$

$$y = -(6)^2 + 12(6) - 39 = -3$$

$$v = (6, -3)$$

$$A.S. = 6$$

Identify the x-intercepts and axis of symmetry then sketch the graph

$$y = 2x^2 - 16x + 24$$

$$\begin{array}{r} 2x - 4 \\ 1 - 6 \\ \hline -12 \\ -4 \\ \hline -16 \end{array}$$

$$2x - 4 = 0$$

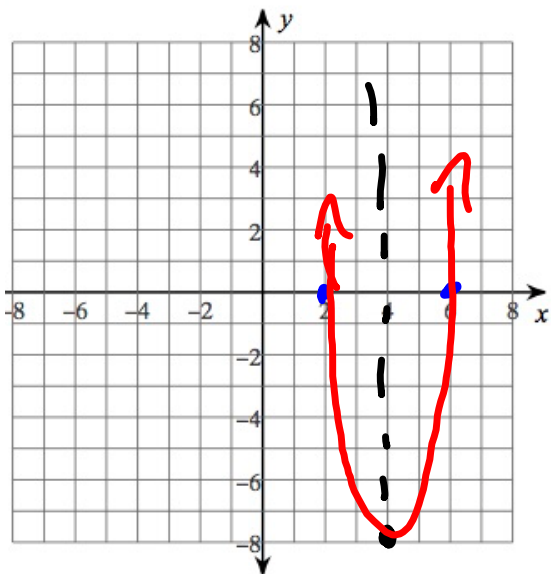
$$x - 6 = 0$$

$$x = 2, 6$$

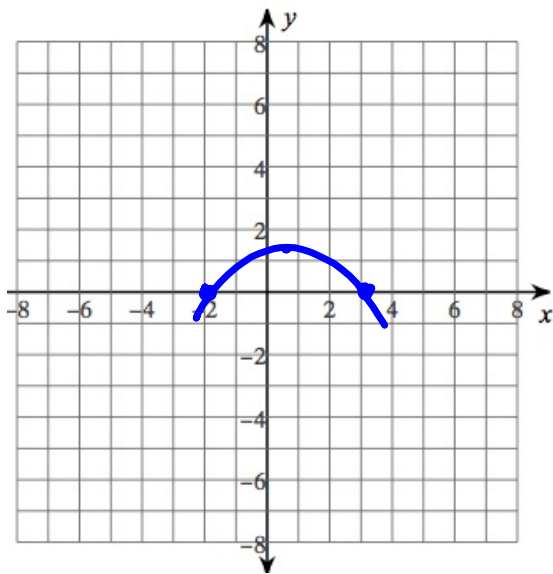
$$x = \frac{-(-16)}{2(2)} = \frac{16}{4} = 4$$

$$y = 2(4)^2 - 16(4) + 24 = -8$$

$$V = (4, -8) \quad AS = 4$$



$$y = -\frac{1}{4}x^2 + \frac{1}{4}x + \frac{3}{2}$$



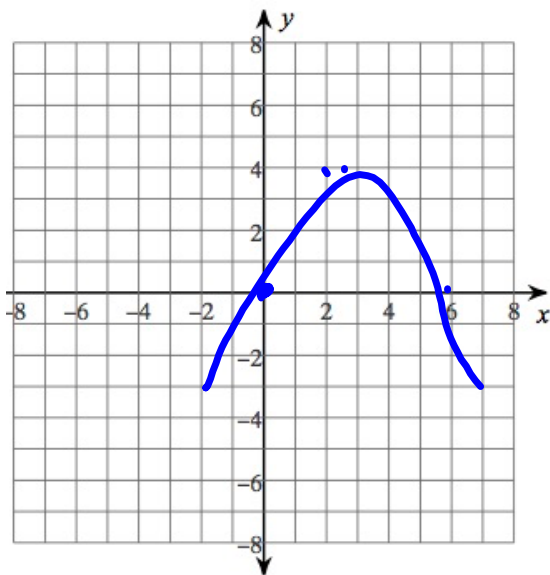
$$V = (0.6, 1.6)$$

$$X\text{-int} = -2, 3$$

$$A.S = 0.6$$

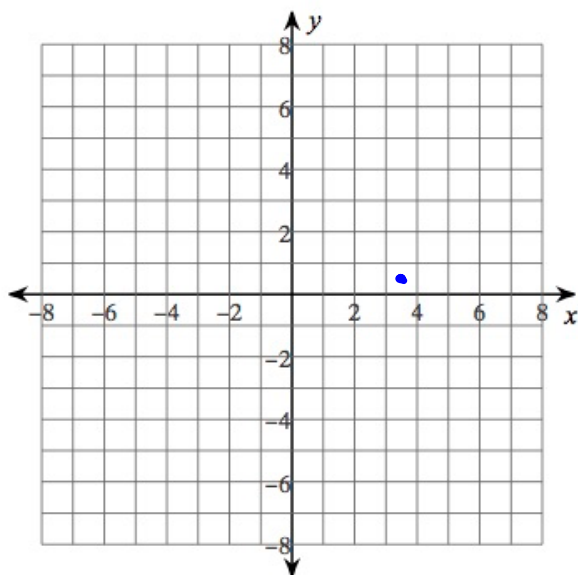
You Try! :) Identify the x-ints, axis of symmetry and then graph the equation.

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



$$V = (\overset{3}{\cancel{2.7}}, 4.5)$$
$$A.S. = 2.7$$
$$X\text{-ints} = 0, 6$$

10) $y = -x^2 + 7x - 12$



$$X = \frac{-b}{2a} = \frac{-(7)}{2(-1)} \\ = \frac{7}{2} = 3.5$$

$$y = -(3.5)^2 + 7(3.5) - 12 \\ = 0.25$$

$$V = (3.5, 0.25)$$

$$A = (3.5)$$

$$x\text{-int} = 2.9, 4.$$