Wednesday, March 6, 2019

- Warm-up
  - Find the zeros (solutions) of the following equations:

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

$0 = (x + 4)(x - 2)$

$x + 4 = 0$ $\quad x - 2 = 0$

$-4 \ -4 \quad +2 \ +2$

$x = -4 \quad x = +2$

$y = x^2 - 8x + 12$

$0 = (x - 2)(x - 6)$

$x - 2 = 0 \quad x - 6 = 0$

$+2 \ +2 \quad +6 \ +6$

$x = 2 \quad x = 6$

- Graphing Quadratics

Objectives:

Content: I will apply factoring and/or quadratic formula to graphing parabolas.

Social: I will be respectful to my classmates by not disrupting the lesson.

Language: I will define the words x-intercept, y-intercept, axis of symmetry and vertex clearly in my notes.

Graphing Quadratics

$y = ax^2 + bx + c$

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

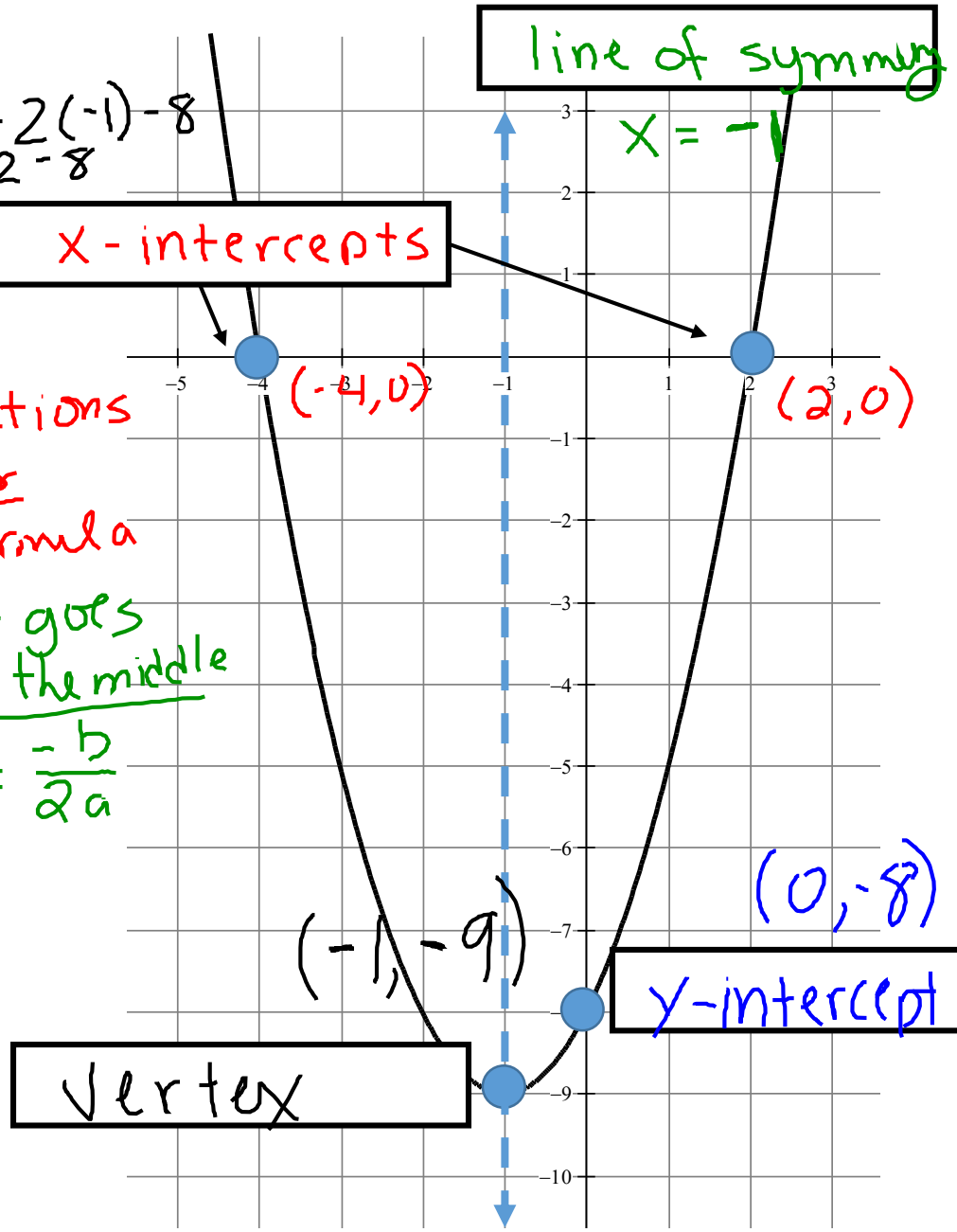
$y = (-1)^2 + 2(-1) - 8$
$= 1 + -2 - 8$
$= -1 - 8$
$= -9$

- y-intercept: c-value (0, c)
- x-intercepts: Zeroes, Solutions
  1. Factor
  2. Set = 0
  3. Solve

  if it doesn't factor → Quadratic Formula
- axis of symmetry: line that goes down the middle

  visually count to middle | midpoint of x-intercepts: $\frac{-4+2}{2} = \frac{-2}{2} = -1$

  $x = \frac{-b}{2a}$
- vertex: min/max



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Graphing Quadratics

$y = ax^2 + bx + c$

$y = x^2 - 8x + 12$

- y-intercept: (0, 12)
- x-intercepts: (2, 0) (6, 0)

$(x - 2)(x - 6)$

$x - 2 = 0 \quad x - 6 = 0$

$x = 2 \quad x = 6$

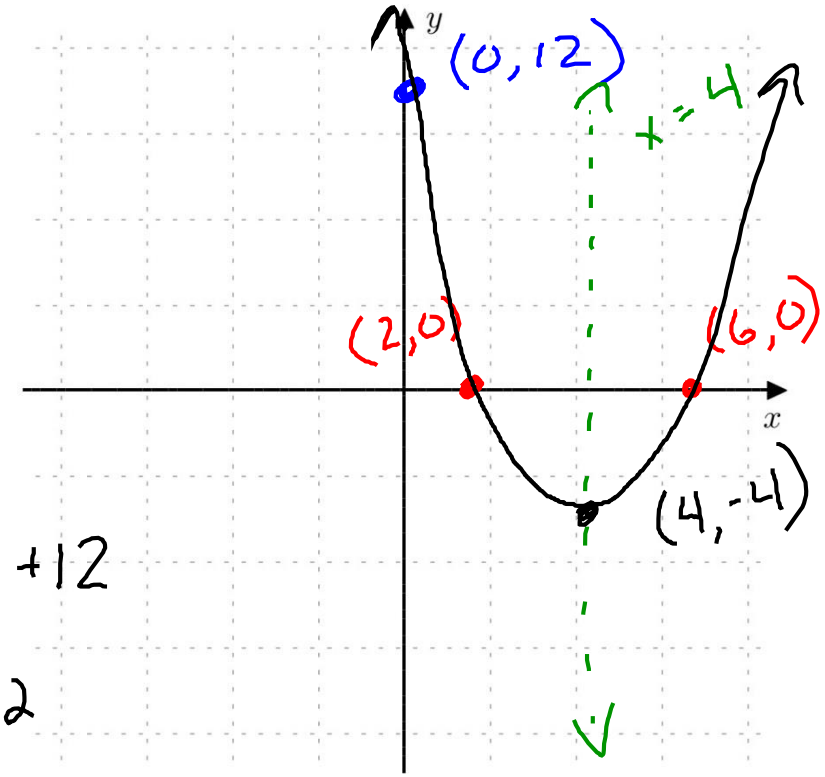
- axis of symmetry: $\frac{2+6}{2} = \frac{8}{2} = 4$
- vertex:

$y = (4)^2 - 8(4) + 12$

$= 16 - 32 + 12$

$= -16 + 12$

$= -4$



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As a team

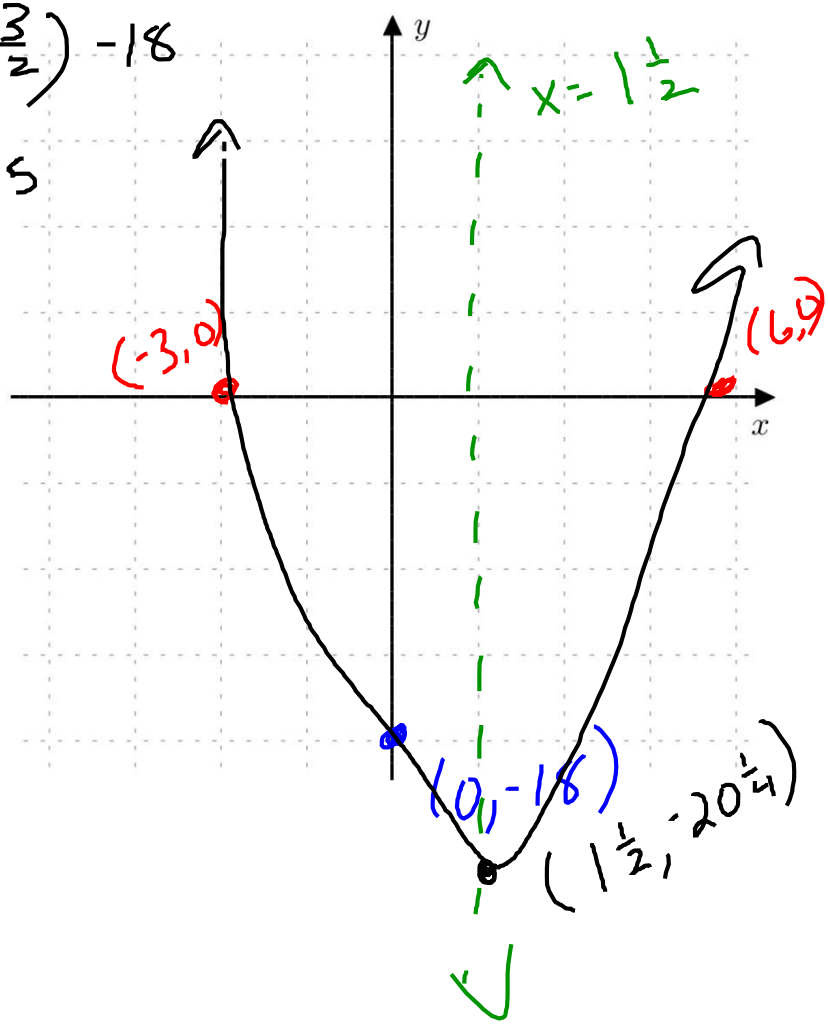
$\left(\frac{3}{2}\right)^2 - 3\left(\frac{3}{2}\right) - 18$

$= 20.25$

$-20\frac{1}{4}$

??? $y = x^2 - 3x - 18$

- y-intercept: $(0, -18)$
- x-intercepts: $0 = (x-6)(x+3)$
  - $x - 6 = 0$, $x = 6$
  - $x + 3 = 0$, $x = -3$
- axis of symmetry: $\frac{6 + -3}{2}$ $\frac{+3}{2}$ $1\frac{1}{2}$ $-\frac{(-3)}{2 \cdot 1}$ $\frac{3}{2}$
- vertex:



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If the equation $y = (x - 6)(x + 12)$ is graphed in the xy-plane, what is the x-coordinate of the parabola's vertex?

A) -6

B) -3

C) 3

D) 6

Exit Slip

- Choose an answer
- Explain your reasoning (show your process).
- Choose an incorrect answer, explain the mistake someone who chose that one made.

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