November 14, 2011

Get out your homework... page 233 #5-22

14) $\frac{1}{2}x^2 - 5 = 13$

$+5 \quad +5$

$2 \cdot \frac{1}{2}x^2 = 18 \cdot 2$

$x^2 = 36$

$x = \pm 6$

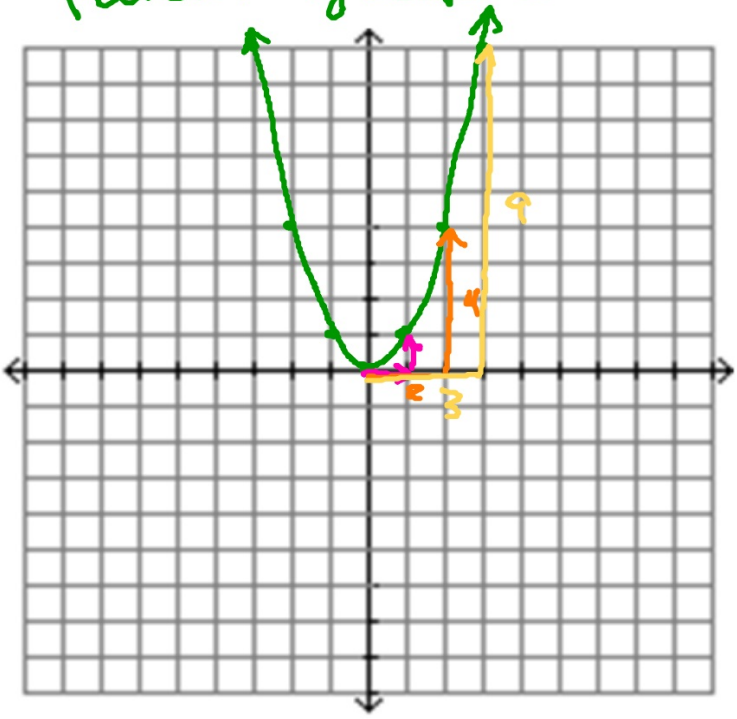
11/~~14~~ 15 - Parabolas: graphs of quadratic equations

Graph this:

$$y = x^2$$

x	y
0	0
1	1
2	4
3	9
-1	1
-2	4
-3	9

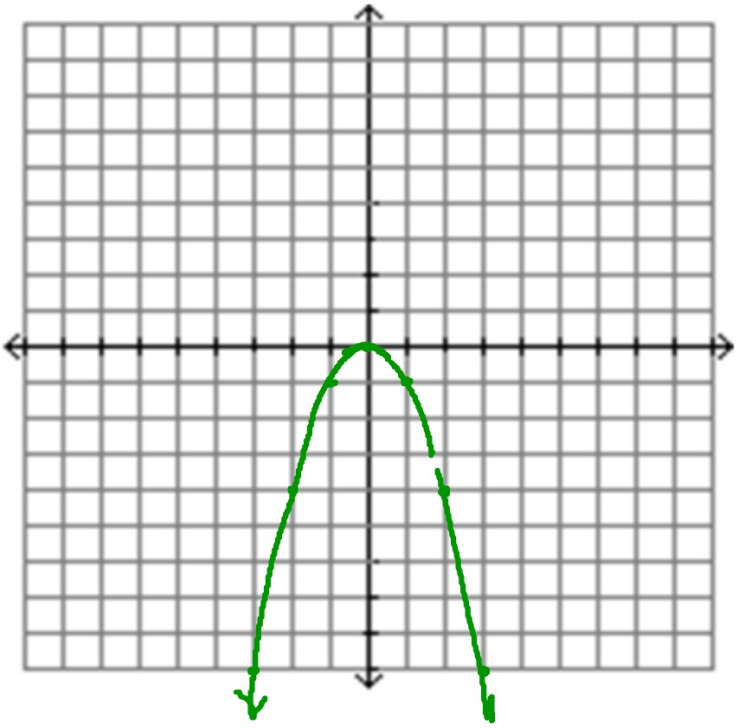
"Parent" graph



Graph this:

$$y = -x^2$$

flip it over the x-axis

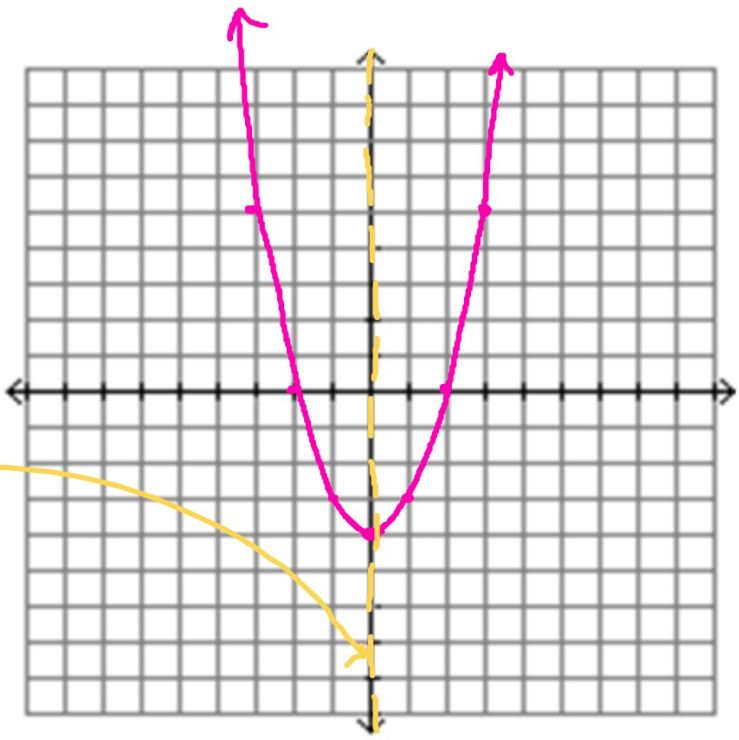


$$y = x^2 - 4$$

opens up

down 4

axis of Symmetry



$$y = -x^2 - 2x + 3$$

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

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

$$= \frac{2}{-2}$$

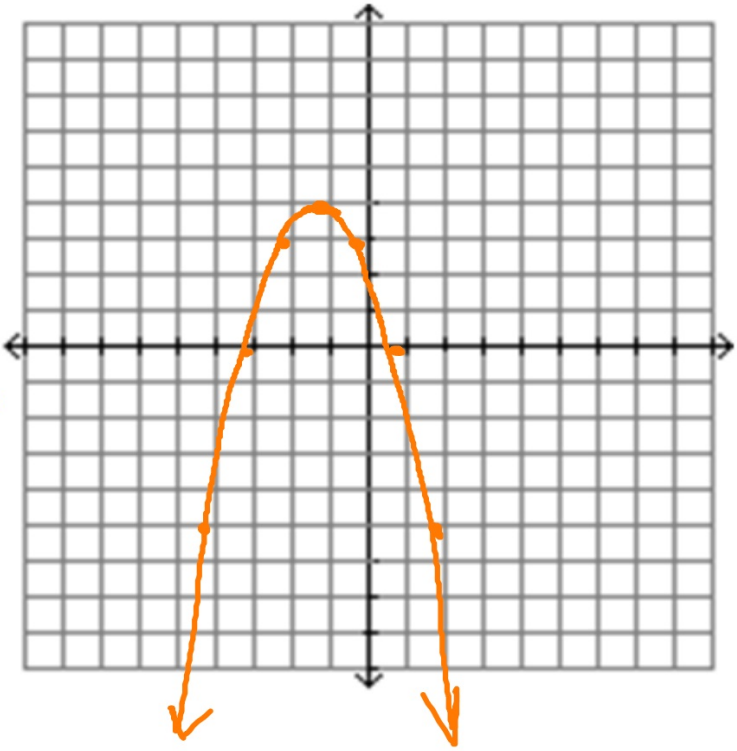
$$= -1$$

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

$$= -1 + 2 + 3$$

$$= 4$$

$$(-1, 4)$$



In $y = ax^2 + bx + c$, the x-coordinate of the vertex is at $\frac{-b}{2a}$ and the line of symmetry is at $x = \frac{-b}{2a}$

Find the vertex and line of symmetry for each.

$y = x^2 - 4x - 5$

$a=1 \quad b=-4 \quad c=-5$

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

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

$= \frac{4}{2}$

$= 2$

$(2, -9)$

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

$= 4 - 8 - 5$

$= -9$

$x = 2 \rightarrow$ line of sym.

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

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

$$= \frac{-2}{2\left(-\frac{1}{2}\right)}$$

$$= \frac{-2}{-1}$$

$$= 2$$

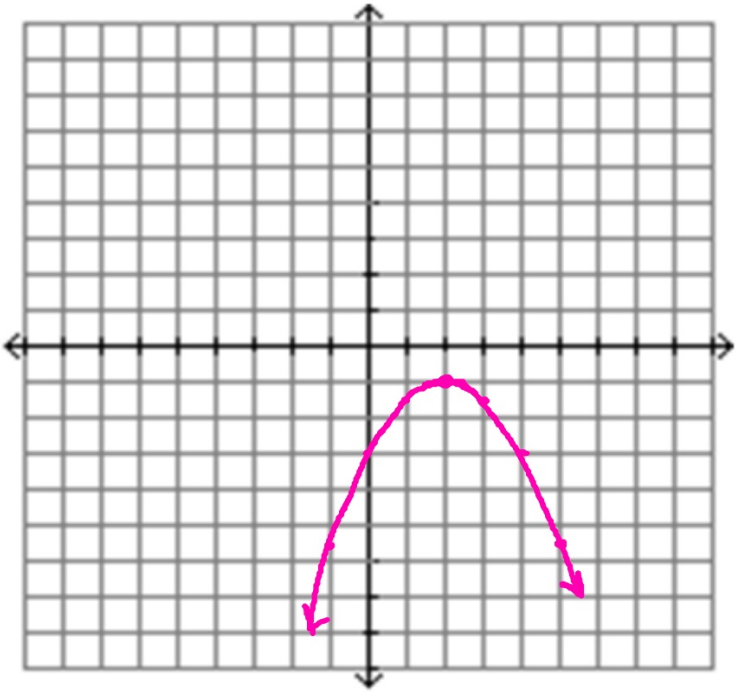
$$y = -\frac{1}{2}(2)^2 + 2(2) - 3$$

$$= -2 + 4 - 3$$

$$= -1$$

over 1 up $1 \cdot \frac{1}{2} = \frac{1}{2}$

2 $\quad 4 \cdot \frac{1}{2} \quad 2$



Homework

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#29-40 all

due Thursday