Tell whether the graph opens **up or down.** Write the equation of the **axis of symmetry**, and find the **vertex.**

ax^2+bx+c

$$y = 4x^2 - 1$$

(x,y)

$a=4,\ b=0,\ c=-1$

UP

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

$x=\frac{-0}{2(4)}=0$

$x=0$ ← Axis of sym

$y=4(0)^2-1$

$y=-1$

Vertex $(0,-1)$

Homework Questions?

24) $\frac{1}{2}\sqrt{\frac{8}{50}} = \frac{1\sqrt{8}}{2\sqrt{50}} = \frac{\sqrt{4}\sqrt{2}}{2\sqrt{25}\sqrt{2}} = \frac{2}{2\cdot 5} = \frac{1}{5}$

25) $\sqrt{\frac{2}{3}}\sqrt{\frac{5}{3}} = \frac{\sqrt{10}}{\sqrt{9}} = \frac{\sqrt{10}}{3}$

14) $6x^2 + 6 = 4$

$-6 \quad -6$

$\frac{6x^2}{6} = \frac{-2}{6}$

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

No Soln

Sketch the graph of the quadratic function. Label the vertex.

* 3) $y = x^2 + 2x - 5$ up

$a = 1, b = 2, c = -5$

$x = \frac{-b}{2a}$ $y = (-1)^2 + 2(-1) - 5$

$x = \frac{-2}{2(1)} = \frac{-2}{2}$ $= 1 - 2 - 5$

$y = -6$

$x = -1$

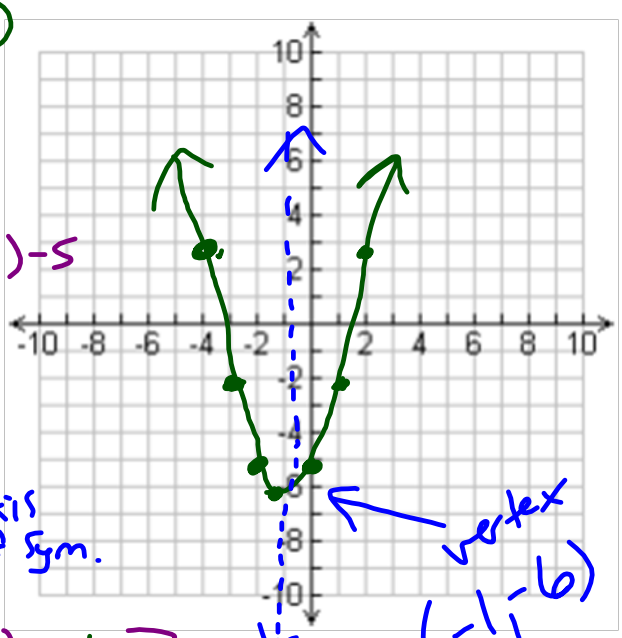
Axis of Sym.

vertex: $(-1, -6)$ (x, y)

vertex $(-1, -6)$

$x = -1$

x	-4	-3	-2	-1	0	1	2
y	3	-2	-5	-6	-5	-2	3



Sketch the graph of the quadratic function. Label the vertex.

4) $y = -4x^2 + 4x - 1$

$a=-4, b=4, c=-1$

$x = \frac{-4}{2(-4)} = \frac{-4}{-8}$

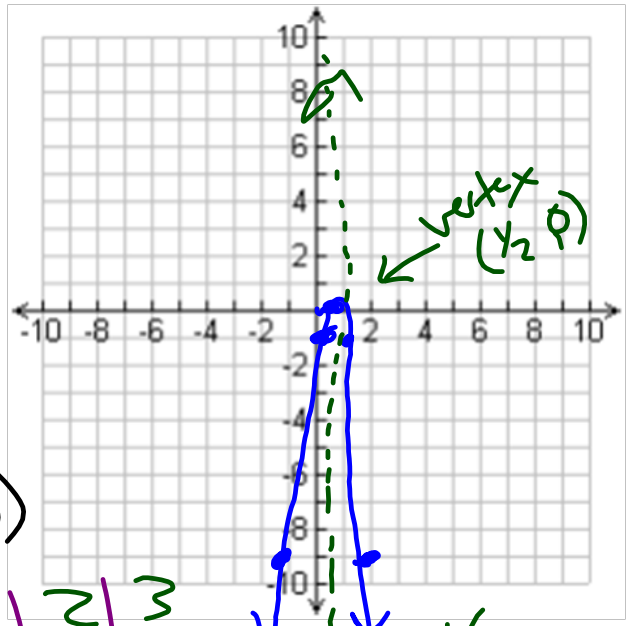
$x = \frac{1}{2}$ axis of sym.

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

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

$y = 0$ vertex: $(\frac{1}{2}, 0)$

x	-2	-1	0	1/2	1	2	3
y	-25	-9	-1	0	-1	-9	-25



Summary

EQ: What is the standard form of a quadratic function and what do you know from it?

9.3 Homework

9.3 Graphing Parabolas wkst #1-8