

Quadratics Quiz - Friday

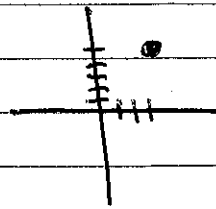
Graphing

standard form: $y = ax^2 + bx + c$

vertex form: $y = a(x-h)^2 + k$
(h, k) vertex

Ex: $y = (x-3)^2 + 5$

V(3, 5)

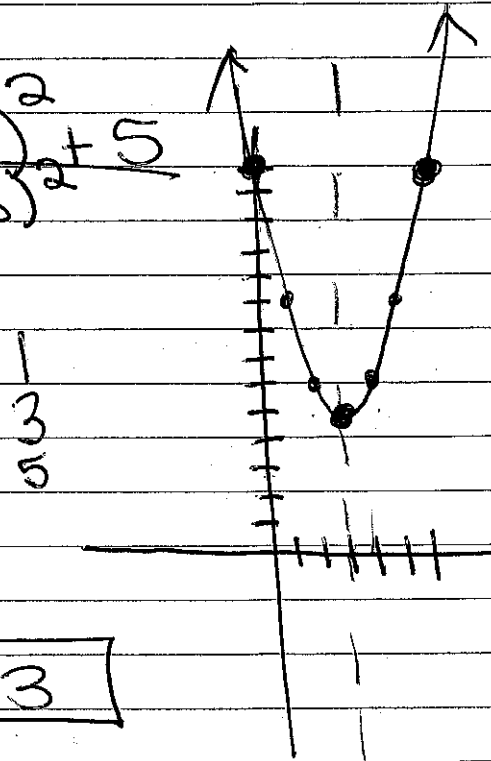


y-int: set $x=0$
 $y = (0-3)^2 + 5$
 $y = 14$

x-int: set $y=0$

$$0 = (x-3)^2 + 5$$
$$\sqrt{-5} = \sqrt{(x-3)^2 + 5}$$

no x-int!



Axis of Symm:

$$\boxed{x=3}$$

Parabola
 $\uparrow \uparrow a=1$
 y-int: 2

Ex: $y = x^2 - 12x + 2$

$$y = x^2 - 12x + 36 + 2 - 36$$

$$y = (x-6)^2 - 34$$

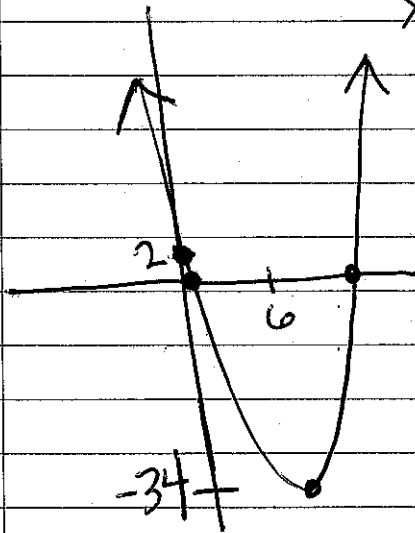
$\left(\frac{-12}{2}\right)^2 = (-6)^2 = 36$
 V(6, -34)

y-int: 2

x-int: $0 = (x-6)^2 - 34$
 $\sqrt{34} = \sqrt{(x-6)^2}$

$x-6 = \pm\sqrt{34}$

$x = 6 + \sqrt{34}, 6 - \sqrt{34}$
 11.8, 0.17



$y = x^2 + 4x$

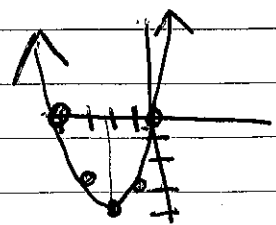
$\left(\frac{4}{2}\right)^2 = (2)^2$

Ex: $y = x^2 + 4x + 4 + 0 - 4$

$y = (x+2)^2 - 4$ V(-2, -4)

y-int: 0

x-int: $0 = x^2 + 4x$
 $0 = x(x+4)$
 x-int: 0, -4



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

$$y = 3x^2 - 6x + 8$$

$$y = 3(x^2 - 2x + 1) + 8 - 3$$

$$y = 3(x-1)^2 + 5$$

$$V(1, 5)$$

$$y\text{-int: } 8$$

$$x\text{-int: } 0 = 3(x-1)^2 + 5$$

no real solns

$$a=3$$

Axis of
Symm: $X=1$

$$X=1$$

| | |
|--------------|----|
| X | 3 |
| 3 | 9 |
| 8 | 15 |

