

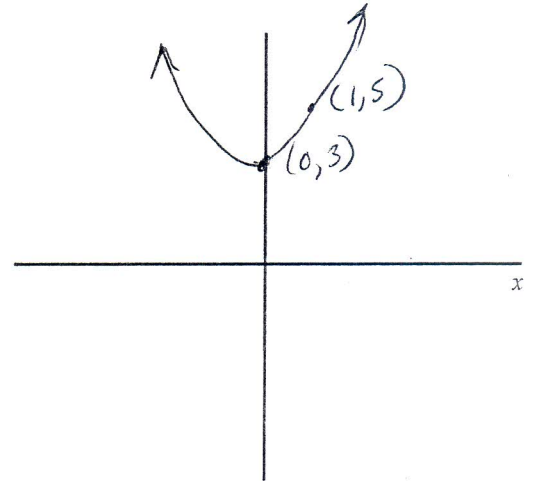
Name \_\_\_\_\_

## Worksheet B -- Graphing Quadratic Functions (Form 1)

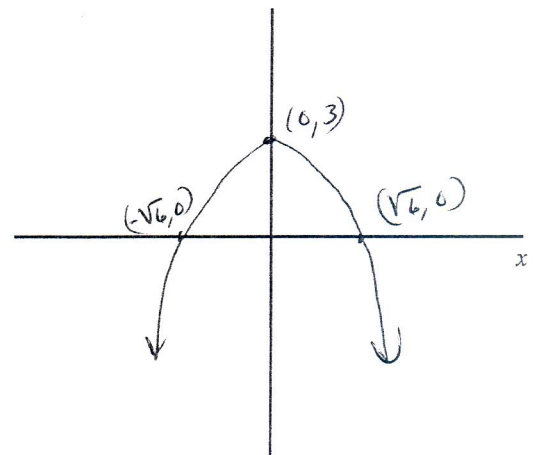
Identify all critical information. Sketch the graph.

*On each graph, plot at least one additional point in addition to the zero(s), y-intercept, and vertex.*

1)  $f(x) = 2x^2 + 3$   
 concavity  $\Rightarrow \curvearrowright$       y-intercept  $\Rightarrow (0, 3)$   
 zeros  $\Rightarrow 0 = 2x^2 + 3$   
 $-3 = 2x^2$   
 $-\frac{3}{2} = x^2$        $x = \pm i\sqrt{\frac{3}{2}}$   
 vertex  $\Rightarrow (0, 3)$        $f(1) = 2 + 3 = 5$

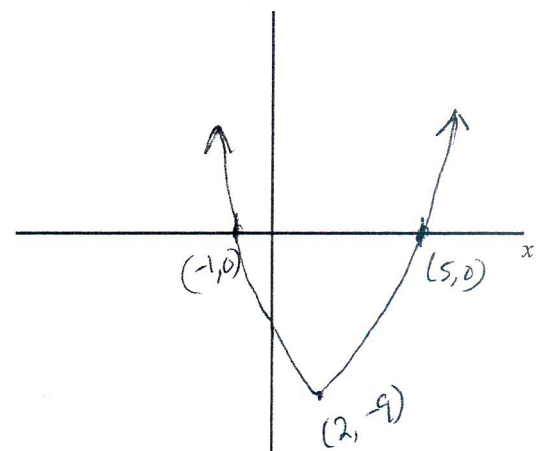


2)  $f(x) = 3 - \frac{1}{2}x^2$   
 concavity  $\Rightarrow \curvearrowleft$       y-intercept  $\Rightarrow (0, 3)$   
 zeros  $\Rightarrow 0 = 3 - \frac{1}{2}x^2$   
 $\frac{1}{2}x^2 = 3$   
 $x^2 = 6$        $x = \pm\sqrt{6}$   
 vertex  $\Rightarrow (0, 3)$



3)  $f(x) = x^2 - 4x - 5$   
 concavity  $\Rightarrow \curvearrowright$       y-intercept  $\Rightarrow (0, -5)$   
 zeros  $\Rightarrow (x-5)(x+1) = 0$   
 $x = 5$      $x = -1$

vertex  $\Rightarrow \left(\frac{-(-4)}{2(1)}, f(2)\right)$   
 $\left(\frac{4}{2}, 4 - 8 - 5\right)$   
 $(2, -9)$



## Worksheet B(1)

4)  $f(x) = -x^2 + 2x + 3$

concavity  $\Rightarrow \curvearrowright$  y-intercept  $\Rightarrow (0, 3)$

zeros  $\Rightarrow 0 = -(x^2 - 2x - 3)$

$0 = -(x-3)(x+1)$

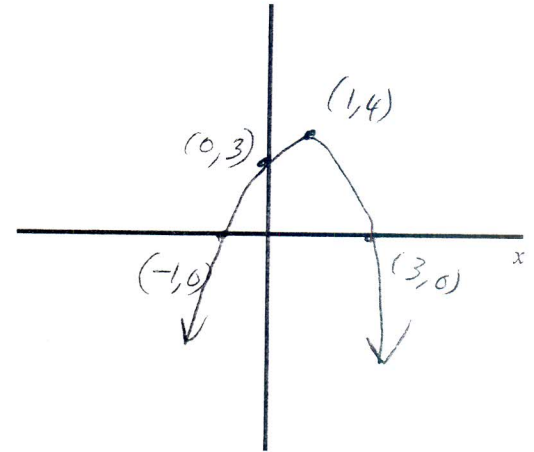
$x = 3 \quad x = -1$

vertex  $\Rightarrow$

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

$(1, -1 + 2 + 3)$

$(1, 4)$



5)  $f(x) = x^2 + 5x$

concavity  $\Rightarrow \curvearrowleft$  y-intercept  $\Rightarrow (0, 0)$

zeros  $\Rightarrow$

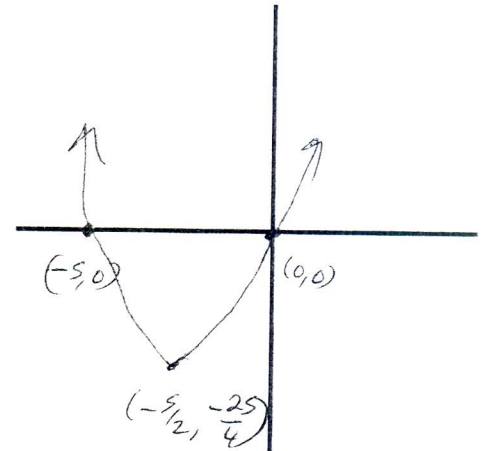
$0 = x^2 + 5x$

$0 = x(x+5)$

vertex  $\Rightarrow x = 0 \quad x = -5$

$\left(-\frac{5}{2}, f\left(-\frac{5}{2}\right)\right) \quad \left(-\frac{5}{2}, -\frac{25}{4}\right)$

$\left(-\frac{5}{2}, \frac{25}{4} - \frac{25}{2}\right)$



6)  $f(x) = x^2 - 5x + 2$  Hint: Don't forget the Quadratic Formula

concavity  $\Rightarrow \curvearrowleft$  y-intercept  $\Rightarrow (0, 2)$

zeros  $\Rightarrow \frac{5 \pm \sqrt{25-8}}{2} = \frac{5 \pm \sqrt{17}}{2}$

vertex  $\Rightarrow \left(\frac{-(-5)}{2}, \frac{25}{4} - \frac{25}{2} + 2\right)$

$\left(\frac{5}{2}, -\frac{25}{4} + \frac{8}{4}\right)$

$\left(\frac{5}{2}, -\frac{17}{4}\right)$

