

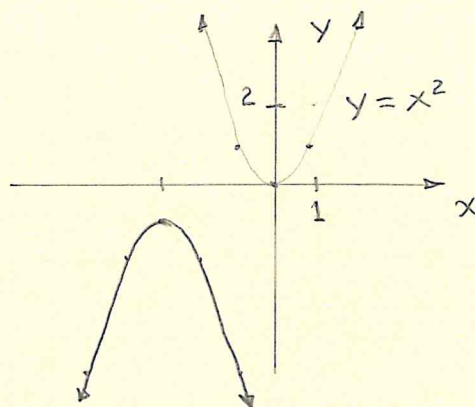
Pg. 96, #12 $y = -(x+3)^2 - 1$

Compared to $y = x^2$

① HS 3 ←

② Rx

③ VS 1 ↓



Pg. 96, #23 $h(x) = x^2 - 2x + 1$

A vertical parabola opening upward.

Vertex: $x = \frac{-b}{2a} = \frac{2}{2} = 1$; $y = h(1) = 0 \Rightarrow \boxed{(1, 0)}$

Pg. 96, #36 $f(x) = -4x^2 + 24x - 41$

A parabola opening downward.

Vertex: $x = \frac{-b}{2a} = \frac{-24}{-8} = 3$; $y = f(3) = -5 \Rightarrow \boxed{(3, -5)}$

x-intercepts ($y=0$): Solve $-4x^2 + 24x - 41 = 0$

By the QF: $x = \frac{-24 \pm \sqrt{24^2 - 4(-4)(-41)}}{-8} = \frac{-24 \pm \sqrt{-80}}{-8}$

Since $\sqrt{-80}$ is not a real number $\Rightarrow \boxed{\text{No x-intercepts}}$

Pg. 97, #42 Vertex: $(-4, -1)$; Point: $(-2, 4)$

Now, $f(x) = a(x-h)^2 + k = a(x+4)^2 - 1$

Since $f(-2) = 4$ we have: $a(-2+4)^2 - 1 =$

$\Rightarrow 4a - 1 = 4 \Rightarrow a = \frac{5}{4}$

So, $f(x) = \frac{5}{4}(x+4)^2 - 1$