

Math 121 – Quiz 2 Solution

1. Suppose the vertex of a quadratic function $f(x)$ is the point $(2, 1)$ and that $f(0) = -3$. What is $f(x)$?
2. Solve the inequality:

$$x(x - 1) > 0$$

Solution:

1. Since the vertex is at $(2, 1)$, we have:

$$f(x) = a(x - 2)^2 + 1$$

Now, since $f(0) = -3$ we have:

$$f(0) = a(0 - 2)^2 + 1 = -3$$

$$4a + 1 = -3$$

$$4a = -4$$

$$a = -1$$

Therefore, $f(x) = -(x - 2)^2 + 1$.

2. The graph of $y = f(x) = x(x - 1)$ opens up and has x -intercepts at $x = 0$ and $x = 1$. Since $f(x) > 0$, the solution is $x < 0$ or $x > 1$.