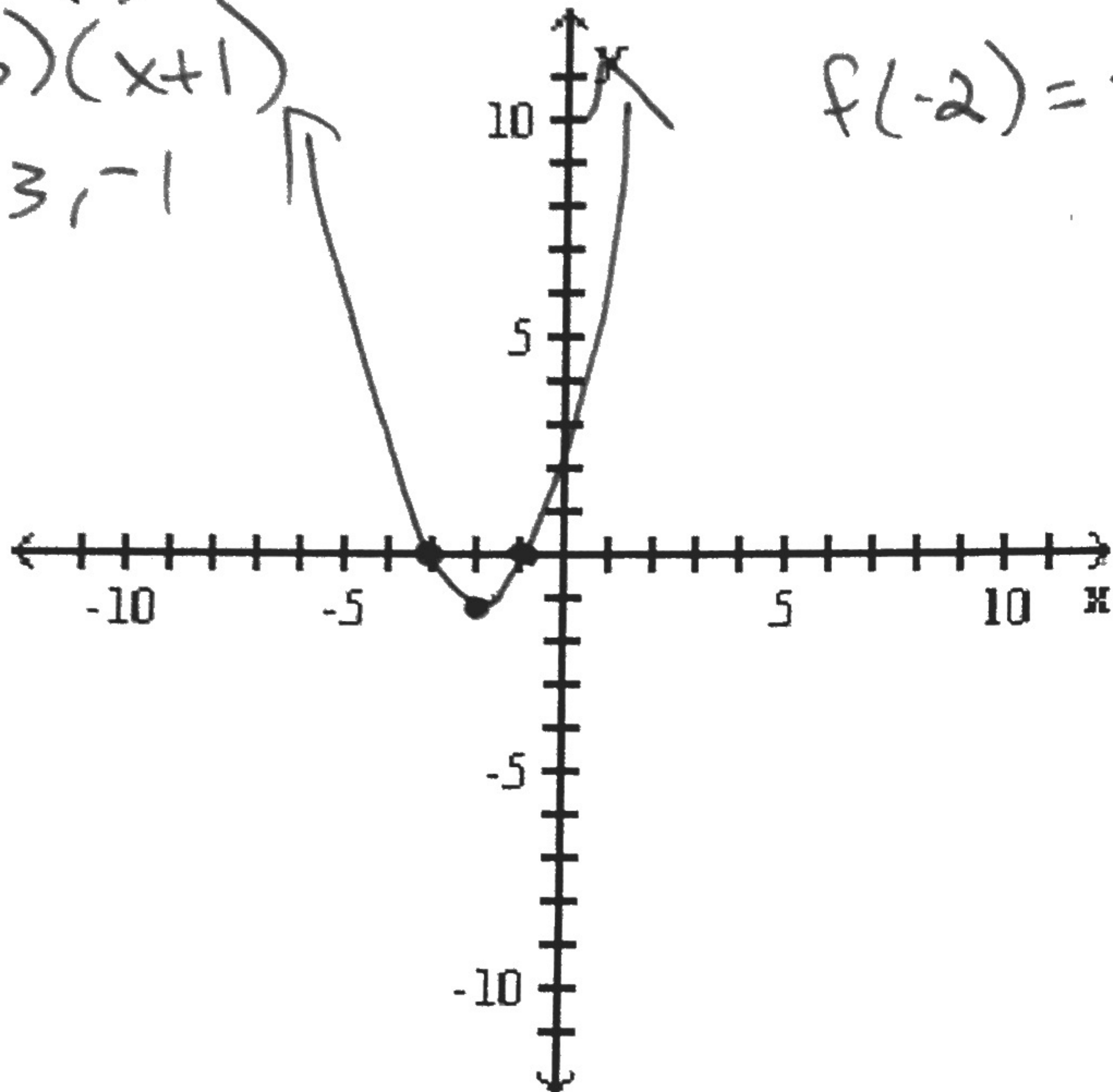


Graph the Function below.

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

$$(x+3)(x+1)$$

$$x = -3, -1$$



$$-\frac{b}{2a} = \frac{-4}{2} = -2$$

$$f(-2) = -1$$

x	f(x)
0	3

a) Does the Graph open up or down?

up

b) What is the axis of symmetry?

$$x = -2$$

c) What is the vertex?

$$(-2, -1)$$

d) What are the intercepts of the function?

$$x = -3, -1 \quad y = 3$$

e) Give the increasing and decreasing intervals.

$$\uparrow (-\infty, -2) \quad \downarrow (-2, \infty)$$

f) Give the domain and range of f(x).

$$d: \mathbb{R}$$

$$r: [-1, \infty) \quad y \geq -1$$