

Exercise 22

In Exercises 19–28, find any intercepts.

$$y^2 = x^3 - 4x$$

Solution

To find the y -intercept, plug in $x = 0$ to the function and solve the equation for y .

$$y^2 = (0)^3 - 4(0) = 0$$

$$y = 0$$

Therefore, the y -intercept is $(0, 0)$. To find the x -intercept(s), set $y = 0$ and solve the equation for x .

$$x^3 - 4x = 0$$

$$x(x^2 - 4) = 0$$

$$x(x + 2)(x - 2) = 0$$

$$x = \{-2, 0, 2\}$$

Therefore, the x -intercepts are $(-2, 0)$, $(0, 0)$, and $(2, 0)$.

