Exercise 23

In Exercises 19–28, find any intercepts.

$$y = x\sqrt{16 - x^2}$$

Solution

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

$$y = (0)\sqrt{16 - (0)^2} = 0$$

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

$$x\sqrt{16 - x^2} = 0$$

$$x^2(16 - x^2) = 0$$

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

$$x = \{-4, 0, 4\}$$

Therefore, the x-intercepts are $(-4, 0)$, $(0, 0)$, and $(4, 0)$.