

Exercise 13

For the following exercises, find the x - or t -intercepts of the polynomial functions.

$$f(x) = x^3 + x^2 - 20x$$

Solution

To find the x -intercepts, set $f(x) = 0$ and solve the equation for x .

$$x^3 + x^2 - 20x = 0$$

$$x(x^2 + x - 20) = 0$$

$$x(x + 5)(x - 4) = 0$$

$$x = 0 \quad \text{or} \quad x + 5 = 0 \quad \text{or} \quad x - 4 = 0$$

$$x = 0 \quad \text{or} \quad x = -5 \quad \text{or} \quad x = 4$$

Therefore, the x -intercepts are $(-5, 0)$ and $(0, 0)$ and $(4, 0)$.

