

Exercise 25

For the following exercises, find the intercepts of the functions.

$$f(t) = 2(t - 1)(t + 2)(t - 3)$$

Solution

In order to find the y -intercept, set $t = 0$.

$$f(0) = 2(-1)(2)(-3) = 12$$

Therefore, the y -intercept is $(0, 12)$. To find the t -intercept(s), set $y = 0$ and solve the equation for t .

$$0 = 2(t - 1)(t + 2)(t - 3)$$

$$t - 1 = 0 \quad \text{or} \quad t + 2 = 0 \quad \text{or} \quad t - 3 = 0$$

$$t = 1 \quad \text{or} \quad t = -2 \quad \text{or} \quad t = 3$$

Therefore, the t -intercepts are $(-2, 0)$ and $(1, 0)$ and $(3, 0)$.

