Exercise 63

The y-intercept is $(0, 0)$. The x-intercepts are $(0, 0)$, $(2, 0)$. Degree is 3. End behavior: as $x \to -\infty$, $f(x) \to -\infty$, as $x \to \infty$, $f(x) \to \infty$.

Solution

The x-intercepts reveal the structure of the function. Square either of the terms to make the degree 3.

$$\begin{aligned} f(x) &= x^2(x-2) \\ &= x^3 - 2x^2 \end{aligned}$$

The function is graphed below, and the intercepts are labelled.