Exercise 58

For the following exercises, use the given information about the polynomial graph to write the equation.

Degree 3. Zeros at $x = -5$, $x = -2$, and $x = 1$. y-intercept at $(0, 6)$

[Add a period at the end to be consistent.]

Solution

Based on the zeros, the model polynomial function is

$$f(x) = A(x + 5)(x + 2)(x - 1).$$

Use the provided point, the y-intercept, to determine A.

$$6 = A(0 + 5)(0 + 2)(0 - 1) \quad \rightarrow \quad 6 = A(-10) \quad \rightarrow \quad A = -\frac{3}{5}$$

Therefore,

$$f(x) = -\frac{3}{5}(x + 5)(x + 2)(x - 1).$$