

Exercise 66

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

Double zero at $x = -3$ and triple zero at $x = 0$. Passes through the point $(1, 32)$.

Solution

Based on the zeros and multiplicities, the model polynomial function is

$$f(x) = A(x + 3)^2(x - 0)^3 = A(x + 3)^2x^3.$$

Use the provided point $(1, 32)$ to determine A .

$$32 = A(1 + 3)^2(1)^3 \rightarrow 32 = A(16) \rightarrow A = 2$$

Therefore,

$$f(x) = 2(x + 3)^2x^3.$$

