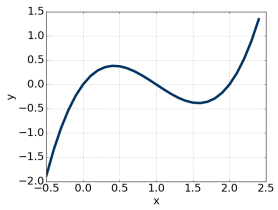
# Objective 2 - Graph Polynomials

*Convert between a polynomial function and its graph.*

Link to section in online textbook.

First, watch this video to learn what the different forms of a polynomial can tell you about its shape. Now practice converting between the graph and the corresponding equation.

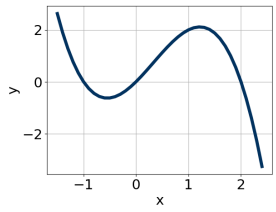
**Question 1** *Write an equation of the function graphed below.*




*List zeros from smallest to largest. Use* 8 *and* 9 *as exponents. The leading coefficient is either* 1 *or* $-1$*.*

$f(x) = \boxed{1}(x - \boxed{0})^{\boxed{9}}(x - \boxed{1})^{\boxed{9}}(x - \boxed{2})^{\boxed{9}}$

**Question 2** *Write an equation of the function graphed below.*

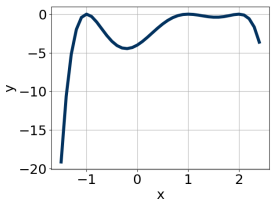



*List zeros from smallest to largest. Use* 6 *and* 9 *as exponents. The leading coefficient is either* 1 *or* $-1$*.*

$f(x) = \boxed{-1}(x - \boxed{-1})^{\boxed{9}}(x - \boxed{0})^{\boxed{9}}(x - \boxed{2})^{\boxed{9}}$

Learning outcomes:
Author(s): Darryl Chamberlain Jr.

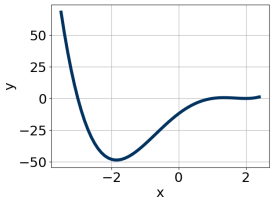
**Question 3** *Write an equation of the function graphed below.*




*List zeros from smallest to largest. Use* 4 *and* 9 *as exponents. The leading coefficient is either* 1 *or* −1.

$f(x) = \boxed{-1}(x - \boxed{-1})^{\boxed{4}}(x - \boxed{1})^{\boxed{4}}(x - \boxed{2})^{\boxed{4}}$

**Question 4** *Write an equation of the function graphed below.*




*List zeros from smallest to largest. Use* 8 *and* 5 *as exponents. The leading coefficient is either* 1 *or* −1.

$f(x) = \boxed{1}(x - \boxed{-3})^{\boxed{5}}(x - \boxed{1})^{\boxed{5}}(x - \boxed{2})^{\boxed{8}}$