

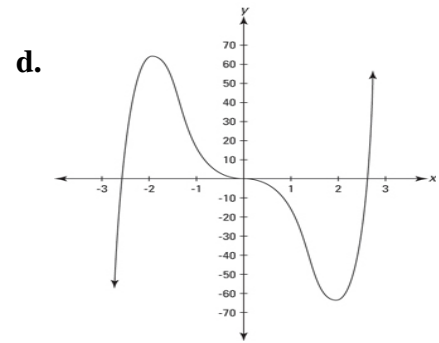
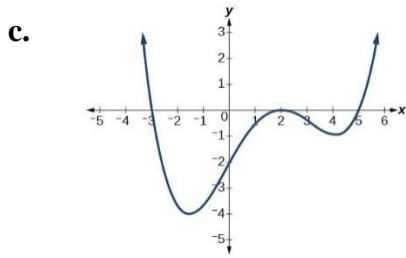
**U5, L1, I1 & I2 Quiz Review Worksheet**

**Learning Target 5A:** *I can identify patterns relating rules and graphs of polynomial functions, connecting polynomial degree to local maximum values, local minimum values, and zeroes.*

1. Describe the end behavior of the polynomial functions.

a.  $y = -x^3 + 2x^2 - 7$

b.  $y = x^5 + 4x^4 - 7x^2$



2. Sketch a graph of a polynomial with the given features.

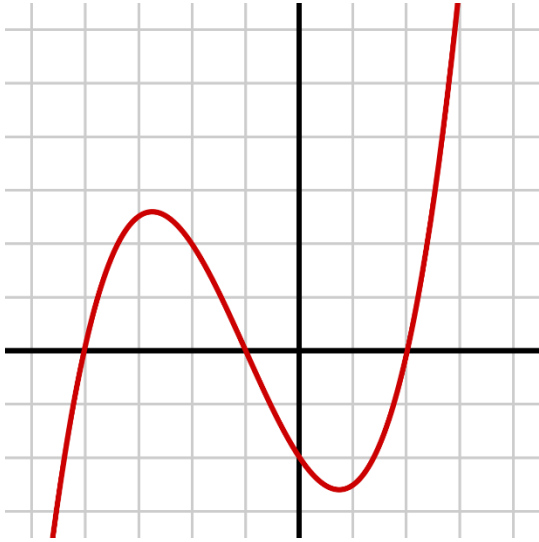
a. Degree = 4, leading coefficient is negative

b. Degree = 2, leading coefficient is positive

c.  $\infty, -\infty$  and zeros:  $x = -2, 1, 5$

d.  $\infty, \infty$  and max:  $(-2, 3)$ , min:  $(-5, 1)$  and  $(1, -1)$

3. Consider the graph of the polynomial function shown below.



a. What is the degree **AND** type of this polynomial function?

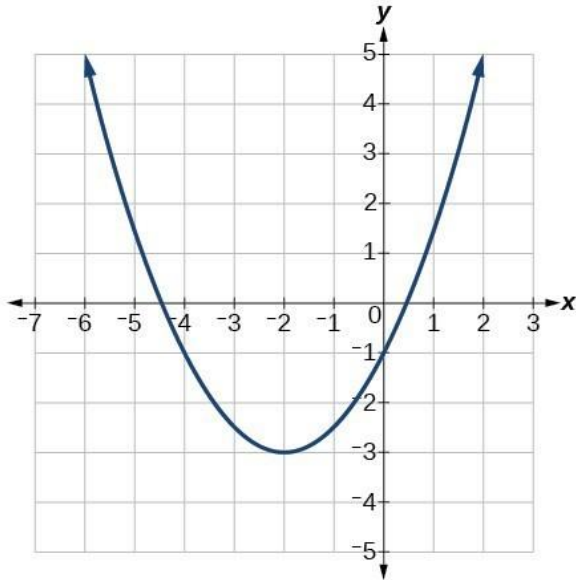
b. Write the function model for the graph. List the points that you used.

c. Estimate all maximum points written as coordinates.

d. Estimate all minimum points written as coordinates.

e. How many zeros does this function have? Find the zeroes of this polynomial function.

4. Consider the graph of the polynomial function shown below.



a. What is the degree **AND** type of this polynomial function?

b. Write the function model for the graph. List the points that you used.

c. Estimate all maximum points written as coordinates.

d. Estimate all minimum points written as coordinates.

e. How many zeros does this function have? Find the zeroes of this polynomial function.

**Learning Target 5B:** I can combine polynomials by adding, subtracting, and multiplying and give the result in its simplified form.

**Consider the functions**  $g(x) = x^4 - 5x^2 + 8x - 36$  and  $h(x) = 5x^3 - 9x^2 + 5x + 20$ .

5. Find  $k(x)$  for  $g(x) + h(x)$

6. Find  $k(x)$  for  $h(x) - g(x)$

**Write in standard form.**

7.  $y = (x - 5)(x + 5)(2x - 1)$

8.  $(x + 6)(3x^2 - 2x + 1)$

9. The total area of a flower bed in a park is modeled with the function,  $F(x) = 2x^2 + 4x - 5$ . The flower bed is surrounded by a mulch border modeled by the function,  $B(x) = x^2 - 3x + 2$ . What is the function,  $A(x)$  for the area of just the flowers.
10. From 1991 through 1998, the number of commercial website  $C(t) = 0.321t^2 - 1.036t + 0.698$  and education websites,  $E(t) = 0.099t^2 - 0.120t + 0.295$  are modeled where  $t$  is the number of years since 1991. Find a model,  $W(x)$  for the total number of commercial and education websites.