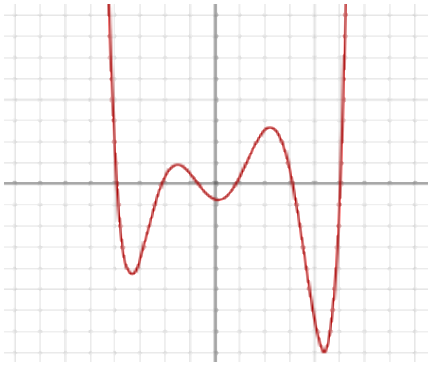
PCFU (C6-C7): Extrema & Zeros Name _____

1) Based on the graph below, determine the following:

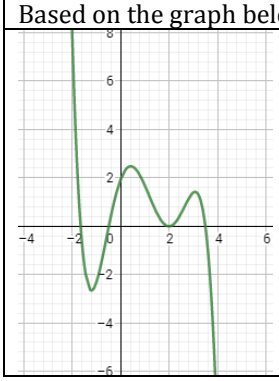


a) Number of relative extrema: 5 Relative extrema are the maximums and minimums or "hills" and "valleys" in the graph. They happen when the graph changes direction. We consider absolute extrema to also be relative extrema.

b) Number of absolute extrema: 1 Since the graph goes to infinity on both ends, there is no absolute maximum. However, there is an absolute minimum in Quadrant IV.

c) Number of zeros: 6 There are six REAL zeros. That is, the graph crosses the x-axis six times.

❖ Follow Up Practice for Q1

Based on the graph below, determine the following:		
	a) Number of relative extrema: b) What is the lowest possible degree of the polynomial? c) Number of real zeros: d) Does this function have an odd degree or an even degree?	

2) What is the greatest number of extrema in a quartic function? 3 There will always be n-1 or fewer extrema where n is the degree of the function. Since a quartic function has degree 4, there will be a maximum of 3 extrema.

3) What is the greatest number of zeros in a quartic function? 4 The degree of a function tells us the maximum number of times the graph can intersect the x-axis.

❖ Follow Up Practice for Q2 & Q3

a) The number of possible zeros for a polynomial of degree 8 is_____.

b) The number of possible relative extrema for a polynomial of degree 8 is_____.

c) How can you tell if a factor has multiplicity simply by looking at a graph?

d) What is the number of absolute extrema for a function with an even degree?

e) What is the number of absolute extrema for a function with an odd degree?