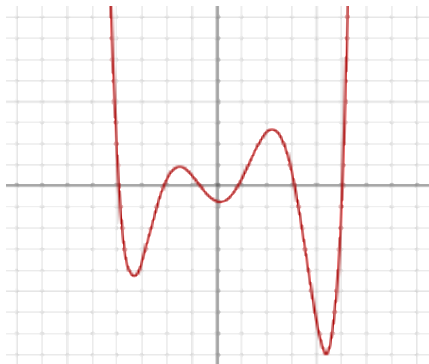


1) Based on the graph below, determine the following:

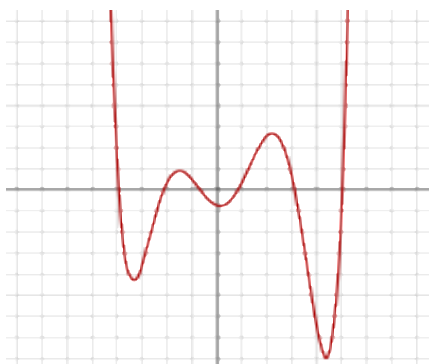


- a) **Number of relative extrema: 5** Relative extrema are the maximums and minimums or "hills" and "valleys" in the graph. They happen when the graph changes direction. We consider absolute extrema to also be relative extrema.
- b) **Number of absolute extrema: 1** Since the graph goes to positive 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 Original Progress Check Q1

<p>Based on the graph below, determine the following:</p>	<ul style="list-style-type: none"> 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?
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- 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 Original Progress Check 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?

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