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| **Standard/Concept** | **“I can…, I know…”** | **Example(s)** |
| Basics/Characteristics  of Polynomials | 1. I can determine the general shape of a polynomial graph. 2. I can describe the end behavior of a polynomial graph. 3. I can find the relative maximums and minimums of a polynomial graph. 4. I can determine on which intervals the polynomial graph is increasing and decreasing. 5. Given an equation or a graph, I can determine if the polynomial is even, odd, or neither. | 1. Describe the end behavior of the polynomial function. 2. Determine whether the following polynomial is even, odd, or neither. 3. a) Sketch a graph of a polynomial that is increasing only on the intervals and .   b) What is a possible degree of the polynomial above? |
| Long &  Synthetic Division | 1. I know that I can always use long division to divide polynomials. 2. I know how to use long division to divide polynomials. 3. I can use synthetic division to divide polynomials by , where is an element of . | 1. a) Use long division to divide   .  b) Use synthetic division to verify your result from the previous problem. |
| Remainder Theorem | 1. I can use the Remainder Theorem to evaluate a polynomial at a specific value. | 1. Use the Remainder Theorem to evaluate if   . |
| Fundamental Theorem  of Algebra | 1. I know that the degree of the polynomial determines the number of roots. 2. I know that the roots can be real and/or complex. 3. I can identify the real roots on a graph. 4. I can use to technology to find exact roots. | 1. The graph of the polynomial below has 2 complex roots.     What is the degree of the polynomial? |
| Zeros | 1. I can find use the rational zero test to state all of the possible rational zeros. 2. I can find the zeros of a polynomial in factored and standard form. | 1. What are all of the possible rational zeros of the polynomial   ? |
| Polynomial Identities  (Factoring) | 1. I can factor a difference of two squares, as well as a perfect square trinomial. 2. I can correctly factor a polynomial using the Rational Zero Test, Long/Synthetic Division, and/or grouping, if necessary. | 1. Factor Completely. |
| Multiplicity/Sketching  Polynomial Graphs | 1. I can use patterns of multiplicity to determine if the graph will “bounce” or pass through the real zeros. 2. I can sketch a graph of polynomial function putting together what I have learned about finding the zeros, y-intercept, end behavior, multiplicity, etc. | 1. a) Find all the zeros of the function .   b) Plot the zeros and y-intercept on the graph. Using what you know about end behavior and multiplicity, sketch a graph of the polynomial.   1. Given that is a zero of the function , determine its multiplicity. |