

Introduction: Analyzing Polynomial Functions with the TI-Nspire

- Use the TI-Nspire to analyze the five polynomial functions (open up a Graphs page). Choose 3 out of the 5 functions below and record your results in the next three boxes.

$$f1(x) = -3x^3 + 20x^2 - 36x + 16$$

$$f2(x) = x^4 - 8$$

$$f3(x) = -x^4 + 5x^2 - 2x - 1$$

$$f4(x) = x^4 - 9x^3 + 25x^2 - 24x + 6$$

$$f5(x) = x^5 + 4x^4 - x^3 - 9x^2 + 3$$

* You must complete on your own with the Nspire calculator (in my room) to get any value out of this activity

- Graph #1: $f(x) =$ _____

—Mr. B

Answer questions a-d.

- a) State the number of real zeros. (Count the number of times the graph of the function crosses or touches the x -axis).
- b) Determine whether your graph represents an odd or even-degree polynomial function. (Look at the largest exponent of the terms. Is it an odd number or an even number?)
- c) Describe the end behavior. (Just sketch the graph and write down in words what direction the graph takes on the left and right side of the screen.)
- d) Find all zeros. (Go to Menu, Analyze Graph, and Zero)

• Graph #2: $f(x) =$ _____

Answer questions a-d.

- a) State the number of real zeros. (Count the number of times the graph of the function crosses or touches the x -axis).
- b) Determine whether your graph represents an odd or even-degree polynomial function. (Look at the largest exponent of the terms. Is it an odd number or an even number?)
- c) Describe the end behavior. (Just sketch the graph and write down in words what direction the graph takes on the left and right side of the screen.)
- d) Find all zeros. (Go to Menu, Analyze Graph, and Zero)

• Graph #3: $f(x) =$ _____

Answer questions a-d.

- a) State the number of real zeros. (Count the number of times the graph of the function crosses or touches the x -axis).
- b) Determine whether your graph represents an odd or even-degree polynomial function. (Look at the largest exponent of the terms. Is it an odd number or an even number?)
- c) Describe the end behavior. (Just sketch the graph and write down in words what direction the graph takes on the left and right side of the screen.)
- d) Find all zeros. (Go to Menu, Analyze Graph, and Zero)

• **Reflect on today's activity:**

- a) List two things that you learned about polynomials from today's activity:
- b) List one thing that you found interesting from today's activity:
- c) List one question that you still have about today's activity: