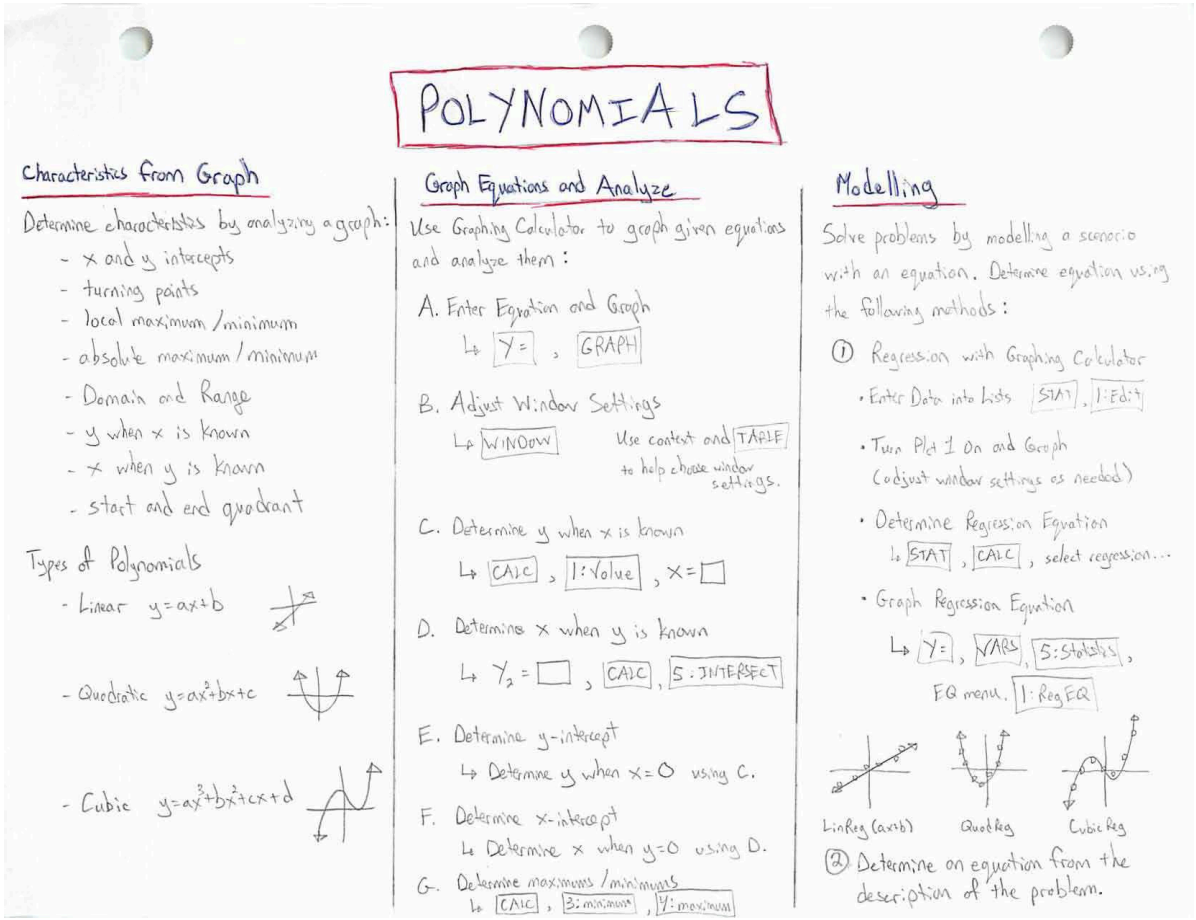
Polynomial Functions - Engaging Resources

RF SO7 - Polynomial Functions Concept Summary Sheet

(Download: Polynomials Concept Map.pdf)

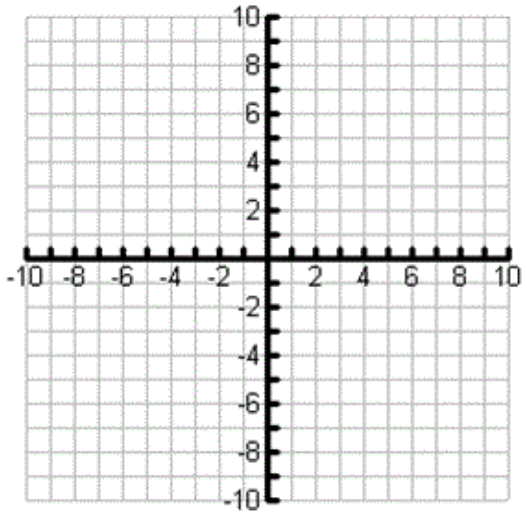
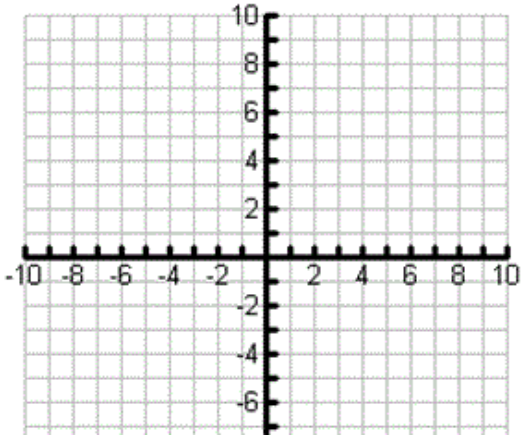
This chart may help students see the big picture and the connections within the topic.



RF SO7 - Sketching Polynomials Assignment

(Download: Sketching Polynomials Assignment.docx)

This assignment allows students to improve familiarity with the appearance, vocabulary and characteristics of linear, quadratic and cubic functions. Students need to sketch a graph based on given criteria and then state some characteristics of the graph they drew.

1. Draw the sketch of a continuous function that has no x-intercepts, one turning point and a *y*-intercept of -3. State the following for your graph: a) Absolute Maximum: _____ b) Domain: _____ c) Range: _____	
2. Draw the sketch of a continuous function that starts in quadrant III and ends in quadrant I, has no turning points, a Domain of [-4, 6] and a Range of [-3,2]. State the following for your graph: a) The x-intercept is: _____. b) The y-intercept is: _____.	

RF SO6-8 - Calculator Instructions Sheets

(Download: Calculator Instructions Sheets.docx)

The first page provides instructions on how to graph a given equation and then solve problems related to the equation. The second page provides instructions on how to perform regression to determine an equation for a line or curve of best fit.

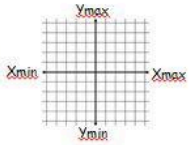
GRAPH AND ANALYZE FUNCTIONS WITH A GRAPHING CALCULATOR

A. Enter Equation and Graph

- Press Y= and enter equation.
- Press GRAPH

B. Adjust Window Settings

- Press WINDOW to adjust the window settings as needed.
- x:[Xmin, Xmax, Xscl] y:[Ymin, Ymax, Yscl]



Note: Use the table of values, TABLE, and context of the problem to help choose window settings. TBLSET will help you navigate the table of values.

C. Determine y when x is known

- Press CALC then 1:value and enter the known x-value into X=___ and press ENTER.

  or
- Press TABLE and scroll through the table to find the y-value for the known x-value.

D. Determine x when y is known

- Press Y= and set Y_2 = known value of y, then GRAPH.
- Press CALC then 5:intersect and follow the calculator directions to determine the intersection point.

E. Determine y-intercept

- Determine y when x = 0 using the instructions in section C.

F. Determine x-intercept

- Determine x when y = 0 using the instructions in section D.

G. Determine maximums / minimums

- Press CALC then either 3:minimum or 4:maximum and follow the calculator directions to determine the maximum or minimum value.

REGRESSION EQUATIONS WITH A GRAPHING CALCULATOR

The graphing calculators have a feature that performs statistical analysis of data to determine an equation for a line or curve of best fit. This line or curve of best fit is called a regression function.

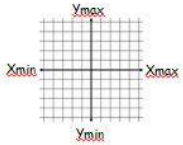
regression function: A line or curve of best fit, developed through a statistical analysis of data.

A. Enter Data into Lists

- Press Stat then 1:Edit and enter values for the independent variable (x) in L_1 and values for the dependent variable (y) in L_2.

B. Turn Plot1 On and Graph

- Press Y= and use the arrow keys to move to highlight Plot1. Press ENTER to turn Plot 1 on. It should now be dark.
- Press WINDOW to adjust the window settings as needed. and then GRAPH.
- x:[Xmin, Xmax, Xscl] y:[Ymin, Ymax, Yscl]



C. Identify Type of Polynomial

- Use the data points on your scatter plot and the context to decide which type of polynomial would best fit the data.

D. Determine Regression Equation

- Press STAT and use the right arrow key to go to the CALC menu.
- From the CALC menu select the regression type ... 4:LinReg(ax+b) or 5: QuadReg or 6:Cubic Reg etc.
- The main screen should appear with your chosen regression type. Press ENTER to calculate the regression equation.

E. Graph Regression Equation

- Send regression equation to Y_1 by pressing Y=.
- With the cursor in Y_1 do the following:
  - VARS, 5:Statistics..., right arrow key to EQ menu, 1:RegEQ
- Equation should now be in Y_1 so press GRAPH.