Unit 4 – Polynomial & Rational Functions

Polynomial/Rational Function Basics:

- be able to use new terminology related to polynomial & rational functions: leading coefficient, degree of polynomial, end behaviour, extrema, names of special polynomials, asymptotes, discontinuities, linear factor, intervals of increase/decrease
- be able to evaluate polynomial and rational functions
- Be able to work through contextual data using (a) regressions given a set of data & (b) determining and interpreting the r^2 value to test the accuracy of your model
- Be able to graph and analyze polynomial/rational functions effectively using the TI-84

Polynomial/Rational Functions from a Graphic Perspective:

- Be able to work from a graph to an equation & determine: (a) Leading Coefficient & its sign, (b) Degree, (c) Constant & (d) Multiplicity of its roots
- Be able to work from a factored equation of a polynomial to a graph & determine: (a) Leading Coefficient & its sign, (b) Degree, (c) Constant & (d) Multiplicity of its roots
- Be able to sketch and analyze graphs of rational functions in the form of Linear/Linear and also in the (transformational) form of a/(x-c) + d
- Be able to apply polynomial/rational functions to modeling scenarios when presented with the graph of the function in context

Polynomial/Rational Functions from an Algebraic Perspective:

- Be able to perform simple polynomial operations (+ - x /)
- Be able to perform synthetic division and understand its role in factoring polynomials
- Be able to fully factor cubics or quartics using synthetic division & fundamental quadratic algebra skills
- Be able to perform quadratic factoring as it relates to higher order polynomials
- Be able to solve quadratics with the quadratic formula as it relates to higher order polynomials
- Be able to solve polynomial equations & inequalities w/ GDC
- Be able to apply polynomial/rational functions to modeling scenarios when presented with the equation of the function in context