**Polynomial and Rational Functions**

Chapter 5 Notes and Assignments

Math 1050

* **5.1** Polynomials Functions and Models

Pg. 338; #’s 15-63 (by 3’s), 65-90 (by 5’s)

* **5.2** Properties of Rational Functions

Pg. 350; #’s 15, 20, 25, 27, 30, 32, 36, 43, 48, 50, 54

* **5.3** The Graph of a Rational Function

Pg. 365; #’s (10-40) (by 5’s), 49, 51

Ch 3.3-Ch 5.3 Test

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**Objectives**: Know the terminology associated with polynomials: polynomial function, power function, degree, real zero, multiplicity, repeated zeroes, touches, crosses, turning point, end behavior. Memorize the power functions as part of the library of functions. Be able to use transformations of x^4 or x^5 to graph. Be able to use information about real zeros and degree to form a polynomial function. Given a graph of a polynomial function, be able to find an equation for the polynomial. Given a polynomial, be able to determine (1) the zeros and their multiplicity, (2) the x- and y- intercepts, (3) the end behavior, (4) the maximum number of turning points, and (4) whether the graph touches or crosses at each zero without using a calculator. Given a factored polynomial, be able to sketch a graph of the polynomial using the steps of this section. Be able to find the domain of a rational function. Know what vertical, horizontal, and oblique asymptotes are. Be able to find them from a graph. Know how to find the vertical, horizontal, and oblique asymptotes of a rational function without a calculator. Memorize the graphs of the functions f(x)=1/x and g(x)=1/x^2 as part of your library of functions. Be able to use transformations of 1/x, 1/x^2 to graph rational functions without a calculator. Be able to graph a rational function, labeling intercepts and asymptotes. Given the graph of a rational function with vertical and horizontal asymptotes, be able to find a possible equation for the function. For graphing rational functions, there will be no functions with holes or quadratic end behavior (see 5.3:13, 14). All graphs will have either a horizontal or oblique asymptote.