Pre-Calculus Honors Unit 2 Test Topics

* Long Division

~must be used when the degree of the divisor exceeds 1

~remainder is ADDED to the quotient as a ratio of the remainder over the divisor

~often used to find the slant/oblique asymptote; in this instance divide until you obtain

 $y=mx+b$

* Solving Rational Equations

~factor all denominators (any type of factoring is fair game)

~state the excluded values

~multiply all numerators by the LCD and cancel

~verify answers with the excluded values before determining the solution(s)

~possible to get no solution

* Write the Equation of a Polynomial (with least degree)

~given a graph with a specific point other than the x-intercepts

~multiplicity: know what it looks like on a graph and how that effects the equation

~remember that imaginary roots always come in conjugate pairs

* Inverse and Direct Proportionality

~translate the English sentence into a mathematical equation

~proportionality constant

~solving multi-step problems for an indicated value

~be sure to consider units

* End Behavior

~express in limit notation for both polynomials and rational functions

~understand generalizations of polynomial end behavior based on odd/even degree and

positive/negative leading coefficient

* Solutions to Polynomial Functions

~factoring (any type of factoring is fair game)

~synthetic division/repeated synthetic division to obtain solutions

~quadratic formula

~use of calculator to determine a values for synthetic division

* Graphs of Rational Functions

~factor first to obtain reduced form (any type of factoring is fair game)

~horizontal asymptote: top heavy, bottom heavy or matching---must be *y* =#

~slant/oblique asymptote: degree of top is precisely one larger than degree of bottom; use

 long division; written in form $y=mx+b$

~hole(s): the expression(s) that cancel set equal to zero then substituted back into the

reduced form of the function; written as an ordered pair

 ~vertical asymptote(s): factors of denominator that DO NOT cancel set equal to zero; written

 as *x*=#

 ~x-intercepts: numerator of reduced form set equal to zero; written as an ordered pair

 ~y-intercepts: substitute zero for all x-values in reduced form; written as an ordered pair

 ~domain: interval notation; excludes x-coordinate of hole(s) and vertical asymptote(s)

 ~range: interval notation; excludes y-coordinate of hole(s) and horizontal asymptote

* Limits

~proper written format

~infinite limits represent end behavior

~recognize left/right/both sides limits

~dne: does not exist