Topics for the Final Exam

Distance Formula: 1.1 in Text

- Be able to find the distance between two points

- Be able to state the Distance Formula

Midpoint Formula: 1.1 in Text

- Be able to find the midpoint between two points

- Be able to state the Midpoint Formula

Circles: 1.1 in Text

- Be able to find the center and radius of a circle in standard form

- Be able to complete the square in order to put a circle equation in standard form

Intro to Graphs: 1.2 in Text

- Be able to find the equation of a horizontal or vertical line

Functions: 1.3 in Text

- Be able to identify the domain and range of a function

- Be able to determine if a relation is a function

- Be able to evaluate a function given a numerical value of a variable

- Be able to evaluate a function given an equation for a variable

Piecewise Functions: 1.4 in Text

- Be able to evaluate a piecewise function

Function Arithmetic: 1.5 in Text

- Be able to evaluate using function arithmetic such as adding, subtracting, multiplying, and dividing functions

Difference Quotient: 1.5 in Text

- Be able to find the difference quotient of a function

Even/Odd: 1.6 in Text

- Be able to determine if a given function is even, odd, or neither

Transformations: 1.7 in Text

- Determine horizontal shifts and direction

- Determine vertical shifts and direction

- Determine reflections and about x or y axis

- Determine horizontal and vertical stretching

Slope: 1.2 in Text

- Determine the slope of a line given two points

- Know the slope of a horizontal line

- Know the slope of a vertical line

- Find the slope given an equation of a line

Equations of a Line

- Find the equation of a line in point-slope form

- Find the equation of a line in slope-intercept form

- Find the equation of a line in standard form

- Find the equation of a line in standard form or slope-intercept form from point-slope form

Parallel/Perpendicular: 2.1 in Text

- Find an equation of a line parallel to a given line

- Find an equation of a line perpendicular to given line

Absolute Value: 2.2 in Text

- Solve an absolute value equation of the form $|ax + b| = c$

- Solve an absolute value equation of the form $|ax + b| = |cx + d|$

- Solve an absolute value equation of the form $|ax + b| = cx$

Quadratics: 2.3 in Text

- Find the vertex of a parabola

- Find the equation of a parabola given the vertex and another point

Absolute Value Inequalities: 2.4 in Text

- Be able to solve an absolute value inequality

- Be able to find an absolute value inequality that satisfies a given interval

Quadratic Inequalities: 2.4 in Text

- Be able to solve a quadratic inequality

Division of Polynomials: 3.1 and 3.2 in Text

- Be able to divide two polynomials using polynomial long division

- Be able to divide two polynomials using synthetic division

- Be able to determine the remainder of two polynomials divided by each other

- Be able to determine if one polynomial is a factor of another

Complex Numbers: 3.4 in Text

- Should be able to add, divide, multiply, and subtract two complex numbers

- Should be able to determine the number of real and complex zeros of a quadratic polynomial

- Should be able to state the quadratic formula

- Should be able to determine i^n for any positive whole number n

- Should be able to find the complex conjugate of any complex number

Rational Functions: 4.1 in Text

- Should be able to find the x-intercept of a rational function

- Should be able to find the y-intercept of a rational function

- Should be able to find the domain of a rational function

- Be able to find the horizontal asymptotes of a rational function

- Be able to find the vertical asymptotes of a rational function

- Be able to construct a rational function given asymptotes and intercepts

Variation: 4.3 in Text

- Know what it means if x is inversely, directly, or jointly (with z) proportional to y

- Should be able to write an equation given how variables are related

- Should be able to solve for a numeric answer given some relation between variables.

- Should be able to find the constant if given relation between variables and some extra information

Composition of Functions: 5.1 in Text

- Find the composition of some functions

- Find the composition of some functions evaluated at a number

Inverse Functions: 5.2 in Text

- Find the inverse of a function

- Find the inverse of a function at a particular number

Intro to Log/Exp: 6.1 in Text

- Be able to covert from Log to Exp form or from Exp to Log form

Log Properties: 6.2 in Text

- Be able to expand from a single Logarithm function

- Be able to write multiple logs as a single logarithm

- Be able to evaluate a log expression

Exponential Properties: 6.3 in Text

- Be able to evaluate an exp expression

Log and Exp Equations: 6.4 in Text

- Be able to solve Log equations

- Be able to solve Exp equations

Applications of Log/Exp: 6.5 in Text

- Be able to use the Compound Interest Formulas

- Be able to determine an amount earned with an annual interest after some number of years with some amount of compounds (including continuously compounded, and compounded n times a year)

*2-by-2 Linear Equations: 8.1 in Text

- Solve a system of 2-by-2 equations

*3-by-3 Linear Equations: 8.1 in Text

- Solve a system of 3-by-3 equations