MA 108R   Course Outline

I.   Review
a) Brief review of order of operations and linear equations
b) Brief review of polynomial operations
c) Brief review of factoring and quadratic equations

II.   Rational expressions and equations
a) Simplifying rational expressions
b   Multiply and divide rational expressions
c) Add and subtract rational expressions
d) Solve rational equations
       1)   Reducible to linear form
       2)   Reducible to quadratic form
       3)   Containing extraneous solutions
       4)   Literal equations

III.   Linear Inequalities
a)   Solve one variable linear inequalities
b)   Solve compound inequalities
c)   Graph solution sets of inequalities
d)   Write solution sets of inequalities using set notation and interval notation

IV.   Linear functions
a) Use various methods to graph linear functions
b) Determine and interpret slope, y-intercept, x-intercept of linear functions
c) Write the equation of linear functions given point and slope or two points.
d) Write the equation of linear function parallel or perpendicular to a given line
    (include horizontal and vertical lines)

V.   Introduction to functions
a) Definition of function
b) Identify the domain and range of a function from its graph
c) Identify the domain of a function algebraically
       1)   Linear and polynomial functions
       2)   Rational functions
       3)   Radical functions
d) Use interval notation and inequality notation to express domain and range
e) Evaluate function:
       1) Algebraically: given x find f(x)
       2) Algebraically: given f(x) find x
       3) Graphically: given x find f(x)
       4) Graphically: given f(x) find x
f) Use and interpret functional notation

VI.   Exponents
a) Review laws of exponents
b) Introduce rational exponents
c) Simplify expressions containing rational exponents

VII.   Radical expressions and radical equations
a) Define terms used in radical expressions (i.e. radicand, index, radical, and root)
b) Rewrite radical expressions using rational exponents
c) Simplify radical expressions
d) Perform basic operations involving radical expressions (add, subtract, multiply)
e) Solve radical equations
       1) Containing a single radical
       2) Containing extraneous solutions

VIII.   Quadratic equations
a) Solve quadratic equations
       1) Factoring method
       2) Principle of square roots
       3) Quadratic Formula
b) Solve quadratic equations applications
c) Solve equations reducible to quadratic form

IX.   Quadratic Functions
a) Recognize quadratic functions
b) Find the vertex, intercepts
c) Determine direction the graph of the function opens
d) Graph quadratic functions