

Math 201 - Review Sheet Test 1

Chapter 0:

1. a.) Be able to solve linear equations.
b.) Be able to solve quadratic equations by factoring or by using the quadratic formula.
3. Be able to solve linear and quadratic equations that involve numerical and algebraic fractions.
4. Be able to solve equations of quadratic form using substitution and solve equations which involve radicals.
5. Be able to isolate one variable in a literal equation. (pg. 33)

Chapter 1:

1. Be able to translate a 'story' problem into an algebraic equation and solve. In general, be able to solve problems of types used in the text (See Sec. 1.1) Specifically, be able to solve problems that involve area or perimeter of a rectangle, revenue, profit, pricing, investment or other business applications
2. Be able to solve linear inequalities.
a.) Be able to translate a story problem into an appropriate linear inequality and solve. Be able to solve problems such as those presented in Section 1.3.
3. Be able to solve equations and inequalities that involve absolute value.
4. Be able to work with summation notation and summation formulas. Be able to find the general term of an arithmetic or geometric sequence. Be able to list several entries in such a sequence when given the general term.

Chapter 2:

1. Understand and be able to work with the concept of a function.
a.) Recognize the independent variable and the dependent variable.
b.) Recognize and be able to work with a polynomial function, specifically with a quadratic function, a linear function or a constant function.
c.) Recognize and be able to work with a rational function, a case defined function and an absolute value function.

d.) Be able to identify the domain of a real valued function through elimination of any real numbers that cause the function to be undefined. Be able to determine the range of a function through analysis or examination of the function's graph.

e.) Be able to evaluate a function for a specific domain value.

$$\frac{f(x+h) - f(x)}{h}$$

1. Be able to evaluate the expression $\frac{f(x+h) - f(x)}{h}$ for a specific function.

f.) Be able to add, subtract, multiply and/or divide functions and work with the result. Be able to accommodate changes necessitated by these actions in the domain of any resulting function.

g.) Be able to find the composition of 2 functions, paying particular attention to the resulting domain.

1. Be able to break a function that *is itself* a composition of functions into its component parts.

2. Be able to find the inverse of a given function.

3. Understand and be able to work with the rectangular coordinate system.

a.) Be able to locate a point in the plane represented by a given (x, y) pair.

b.) Be able to picture (graph) an equation in a rectangular coordinate system using a *connect the dots* approach.

c.) Be able to determine whether or not a graph represents a function through use of a **vertical line test**. Be able to determine whether a function is *one to one* through analysis and/or use of a **horizontal line test**.

d.) Be able to analyze an equation to identify any symmetry about the x axis, the y axis or the origin.

1. Be able to graph an equation primarily through use of x and y intercepts and an analysis of symmetry about the x axis, the y axis or the origin.

e.) Be able to identify symmetry of an equation or equations about the line $y = x$ and be able to graph inverse functions showing symmetry about this line.

f.) Be able to sketch a function of the following basic forms:

$$y = f(x) = x ; f(x) = x^2, f(x) = |x|, f(x) = \sqrt{x}, f(x) = 1/x$$