**Algebra1 Test Study Notes**

**Test Date – Friday, 15 October 2010**

Ratios and Proportions

* + Two fractions make a proportion, when the cross products are equal
  + Test for proportionality by comparing cross products
  + If one part of the proportion is unknown, cross multiply and solve for the unknown variable

Percent Change

* + If the new value is greater than the original value, there is a percent increase
  + If the new value is less than the original value, there is a percent decrease
  + To determine the percent increase (decrease) divide the amount of change by the original value, multiply this decimal by 100% to express as a percent
  + If the percent change is known, to solve for the unknown in the problem, set up a proportion and solve for the unknown

Weighted Averages

* Create a chart and set up two equivalent equations
* One column will be a volume, one of the rows will likely be a variable
* The second column will be a unit cost
* The last column will be a cost, or similar, that multiplies the first two columns
* The last row is the total, multiplying across the last row equals adding the last column
* Set the two equation equal to each other, and solve for the unknown
* For uniform distance problems, distance = rate time time

Coordinate Plane

* Be prepared to identify any of the following items
* Origin, x-axis, y-axis, quadrants
* Points are shown as a coordinate pair, (x,y)
* Be prepared to plot points, and to find the coordinate values of existing points

Transformations

* Reflection
  + In the y-axis, the x values change sign
  + In the x-axis, the y values change sign
* Translation
  + Moving right is added to the x value, left is subtracted
  + Moving up is added to the y value, down is subtracted
* Dilation
  + Multiplication of every coordinate point by the same value
  + If the value is more than one, it is a stretch (enlargement)
  + If the value is between one and zero, it is a shrink
* Rotation
  + Counter Clock Wise 90 degrees, switch x and y values, and change the sign of the new x coordinate

Relations

* Tables, Coordinate Pairs, Mapping and graphs
* Be prepared to change from one to another form
* Inverse is switching the x and y values (domain and range)

Counting Outcomes

* The number of ways events can occur is the multiplication of possible occurances
* Factorials can be used to determine the number of outcomes
  + N! is 1\*2\*3\*…\*n

Permutations

* Permutation is the number of outcomes, when the order is important
* The permutation of n objects r times is

Combinations

* Combinations is the number of outcomes when order is important
* The combination of n objects r times is

Review Questions

* Two review questions
  + Solving equations
  + Graphing interpretation