**Math Concepts to Know for the ACT/SAT**

**Pre-Algebra/Algebra 1**

* PEMDAS
* Solving equations with one variable
* Setting up equations from word problems
* Linear equations
  + Graphing
  + Finding slope
  + Parallel and Perpendicular Lines
  + Different Forms of Linear Equations
* Greatest common factor
* Least common multiple
* Ratios and proportions (cross multiplication)
* Inequalities
* Absolute value equations and inequalities

**Algebra 2**

* Solving Systems of Equations
  + Graphing
  + Substitution
  + Elimination
  + Determining the # of solutions for a given system
* Exponent rules
* Square roots
* Solving quadratic functions
  + Factoring
  + Quadratic formula
  + Determining number of solutions (discriminant)
* Matrices/determinants
* Parabolas
  + Different forms of parabolic functions (standard vs. vertex form)
  + Graphing in both forms
  + Transformations
* Circles
  + Standard form & graphing
* Rational and radical expressions
  + Conjugates
  + Rationalizing expressions
* Polynomial functions
  + Solving/finding roots
  + End behavior of graphs
  + Multiplicities of roots
  + Long and synthetic division

**Geometry**

* Area and perimeter of 2-D shapes
* Surface area and volume of 3-D shapes
* Circle properties
  + Area
  + Circumference
  + Arc length
  + Area of sector
  + Central angles
* Sequences and patterns
* Distance and midpoint
* Parallel lines and angles relationships formed
* Transformations of graphs

**Trigonometry**

* Right triangles
  + Pythagorean theorem
  + Trig functions – sin, cos, and tan
  + Inverse trig functions – csc, sec, and cot
  + Word problems (angle of elevation and angle of depression)

**Statistics**

* Probability
* Data interpretation and analyzation
* Mean, median, and mode
* Standard deviation
* Linear regression (“line of best fit”)