**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”)