Greetings form the Arundel High School Mathematics department. The following presents a list of content topics that students entering high school may have been exposed to during previous instruction and will support success within mathematics courses at Arundel High School. Hyperlinks to resources have been provided both within the topics and as reference. No resources have been created by Anne Arundel County Public Schools and therefore, all sites should be viewed for their instructional capacity under the permission and supervision of parent/guardians. Students who need additional support with any topics may consider independent research and then, when school begins, may choose to seek additional support from the mathematics department or from our National Honor Society tutors. Math topics will be reviewed/retaught when relevant to upcoming content within specific math courses but a general proficiency with the topics below will help students start on a positive footing when entering Arundel HS.

All students entering high school should be able to do the following*:

Complete numeric operations with all numbers (decimals, fractions, integers, rational) without the use of a calculator.

Know the difference between rational and irrational numbers.

Apply properties of integer exponents to simplify expressions.

Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.

Solve simple and complex proportions containing one unknown quantity.

Know and be able to apply the Pythagorean Theorem to determine unknown side lengths in right triangles and to find the distance between two points in a coordinate system.

Graph a linear function given any combination of the slope of the line and 1 or 2 points on the line.

Determine the equation of a line given any combination of the slope of the line and 1 or 2 points on the line.

Create equations and inequalities in one variable and use them to solve problems.

Determine and interpret the slope of a line given a table, graph and/or story problem.

Solve a system of equations, in two variables, graphically and algebraically (substitution and/or elimination).

Additionally - all students who have successfully completed Algebra I should be able to do the following (*note that all skills with quadratics will be reinforced in Algebra II)*:

Graph quadratic functions in standard, vertex or intercept form and show intercepts/zeros/roots, maxima, and minima.

Describe the shape and key components of a quadratic function in standard, vertex or intercept form.

Use the discriminant to determine if a quadratic is factorable and the number of real solutions.

Factor a quadratic expression to reveal the zeros of the function.

Use quadratic formula to reveal the zeros of a function that cannot be factored.

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R* $(R = \frac{V}{I})$.

Solve simple rational and radical equations in one variable.

*For all core concepts mentioned, students should be able to link mathematical content to real world scenarios, be able to evaluate the scenarios and model the scenario using mathematics.

Websites reference in the hyperlinks and additional web resources:

http://www.mathsisfun.com/

http://www.studystack.com/Math

http://www.sheppardsoftware.com/math.htm

http://www.algebralab.org/lessons/lesson.aspx?file=Algebra_ExponentsScientific.xml

http://www.nctm.org/

http://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=64
(5 minute free trial)

http://www.purplemath.com/

http://www.brightstorm.com

www.mathgoodies.com

http://studyjams.scholastic.com/studyjams/jams/math/algebra/acreating-equations.htm

http://www.nsa.gov/

http://www.regentsprep.org

For additional practice on a variety of skills:

http://www.kutasoftware.com/

http://www.coolmath.com/algebra/algebra-practice-problems.html

http://www.math.wsu.edu/HS/problems.html

http://www.math-drills.com/algebra.shtml#evaluating