



*The topics below are covered in St. Mary's Ryken Honors Algebra 1 curriculum.*

For preparation or review, the following sites provide an array of instructional materials to help ready your child for the SMR Math Validation Test:

- <https://www.khanacademy.org/math>
- <https://www.ixl.com/math/>

Please contact the Dean of Academics, Mr. Brad Chamberlain with any questions or concerns at [brad.chamberlain@smrhs.org](mailto:brad.chamberlain@smrhs.org) or 301-373-4188.

### 2022 Algebra I Validation Test Topics

#### Linear Functions:

- Graph equations in slope intercept and standard form
- Calculate slope from ordered pairs and a graph
- Write equations in slope intercept and standard form given ordered pairs
- Convert between slope intercept form and standard form and vice versa
- Write equations of parallel and perpendicular lines
- Identify if a relation is a function

#### Quadratic Functions:

- Graph equations in standard and vertex form
- Solve equations by completing the square, square root property, factoring and using the quadratic formula
- Factor using the GCF, general trinomials, difference of squares and grouping
- Calculate the discriminant and determine the number and type of solution

#### Equations, Expressions and Inequalities:

- Solve multi-step equations to include variables on both sides and distributing
- Solve equations for a given variable
- Solve absolute value equations and inequalities
- Solve equations with square roots
- Solve and graph inequalities
- Solve and graph compound inequalities
- Simplify expressions using PEMDAS
- Evaluate expressions using PEMDAS
- Simplify rational expressions
- Simplify radical expressions

#### Systems of Equations and Inequalities

- Solve a system of two equations using graphing, substitution and elimination
- Solve a system of linear inequalities by graphing
- Write and solve a system of equations from a word problem

#### Polynomials:

- Divide using long or synthetic division
- Add and subtract
- Multiply binomials and trinomials
- Simplify expressions using the rules of exponents

#### Percents & Proportions:

- Calculate percent of a number
- Calculate the percent of change
- Solve proportions that require distributing to solve

#### Real Number System:

22600 Camp Calvert Road  
Leonardtown, Maryland 20650  
301-475-2814 / 301-373-4195 (Fax)

- Classify numbers as rational, irrational, whole, integer and natural

**Graphing:**

- Be able to graph linear, quadratic, absolute value and exponential equations on a coordinate grid

**Scientific Notation:**

- Multiply and divide numbers written in scientific notation