



*The topics below are covered in St. Mary's Ryken Honors Geometry 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 Geometry Validation Test Topics

- Identify points, lines, planes, segments, rays and angles
- Use the distance and midpoint formulas
- Measure and classify angles and angle relationships
- Inductive and deductive reasoning
- If-then statements; converses
- Special pairs of angles resulting from transversals and perpendicular lines
- Properties of parallel lines
- Proving lines are parallel
- Angles of a triangle
- Angles of a polygon
- Congruent Figures
- Methods of Proving triangles are congruent
- Using congruent triangles
- Isosceles triangle theorems
- Medians, Altitudes and perpendicular bisectors
- Quadrilaterals
- Properties of parallelograms
- Prove quadrilaterals are parallelograms
- Theorems involving parallel lines
- Indirect proofs
- Ratios and proportions
- Properties of polygons
- Similar polygons
- Postulates and theorems for similar triangles
- Proportional lengths
- Similarity in right triangles
- Pythagorean theorem and its converse
- Special right triangles
- Trig ratios-sine, cosine, tangent, secant, cosecant and cotangent
- Applications of right triangle trigonometry
- Tangents and secants
- Arcs, central angles and chords
- Inscribed and other angles
- Circles and lengths of segments
- Areas of rectangles, parallelograms, triangles, trapezoids, regular polygons and rhombuses

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- Circumference and area of circles
- Arc length and area of a sector
- Area and volume of solids: prisms, pyramids, cones and spheres
- Slope of parallel and perpendicular lines