# Grade 8 Mathematics Course Comparison

<table>
<thead>
<tr>
<th>Mathematics 8</th>
<th>Algebra I</th>
<th>Algebra 1 Honors</th>
<th>Geometry Honors</th>
</tr>
</thead>
</table>
| **Content**   | This course continues to emphasize the foundations of algebra. Areas of study include these four strands:  
  - Expressions and Operations  
  - Equations and Inequalities  
  - Functions  
  - Statistics | This course contains the entire curriculum for Algebra I as well as extension topics to prepare students for additional honors courses in the mathematical progression of courses. | This course emphasizes two- and three-dimensional reasoning skills, coordinate and transformational geometry, and the use of geometric models to solve problems. Areas of study include:  
  - Reasoning, Lines, and Transformations  
  - Triangles  
  - Polygons and Circles  
  - Three-Dimensional Figures |
| Topics include: | Topics include:  
  - Polynomial operations  
  - Laws of exponents  
  - Factor binomials and trinomials  
  - Solve multistep linear and quadratic equations  
  - Solve multistep linear inequalities  
  - Graph linear equations and inequalities  
  - Investigate and analyze linear and quadratic families  
  - Interpret variation in data set in real-world context  
  - Determine the equation of the curve of best fit for a set of data | Some extension topics include:  
  - Fractional exponents  
  - Simplify rational expressions  
  - Derive the quadratic formula  
  - Solve radical equations  
  - Solve absolute value inequalities | Topics include:  
  - Construct and judge the validity of a logical argument  
  - Parallel lines  
  - Symmetry and transformations  
  - Geometric constructions  
  - Investigate properties of triangles  
  - Solve real-world problems involving polygons and circles  
  - Find the surface area and volume of three-dimensional figures  
  Some extension topics include:  
  - Proofs longer than four steps  
  - Evaluate truth tables  
  - Matrices  
  - Vectors  
  - Equation of an ellipse  
  - Non-Euclidean Geometry |
| **Course Highlights** | Students earn high school credit  
  - grade may be expunged  
  - a student’s first high school mathematics course may not be taken over the summer | Students earn high school credit  
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| **High School Credit** | The student will take the Mathematics 8 SOL test in the Spring | The student will take the Algebra 1 SOL test in the Spring  
  - A score of pass proficient or passed advanced combined with successful completion of the course will earn a student one verified credit toward graduation | The student will take the Geometry SOL test in the Spring  
  - A score of pass proficient or passed advanced combined with successful completion of the course will earn a student one verified credit toward graduation |
| **SOL Test** | Algebra I (Prerequisite: Mathematics 7) | Geometry or Geometry Honors (Prerequisite: Algebra I) | Algebra II or Algebra II Honors (Prerequisite: Algebra I and Geometry) |