Geometry

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Geometry	The student has not demonstrated an ability to give descriptions or definitions of geometric shapes. The student is not able to use definitions, postulates, and theorems to complete or write proofs.	The student gives precise descriptions of geometric shapes in the plane. The student uses definitions, postulates, and theorems to solve basic problems.	The student gives precise mathematical descriptions or definitions of geometric shapes in the plane. The student solves problems involving two-dimensional figures using visualization. The student uses definitions, postulates, and theorems to solve problems and complete parts of a proof.	The student gives precise mathematical descriptions or definitions of geometric shapes in three-dimensional space. The student solves problems involving three-dimensional figures using visualization. The student uses definitions, postulates, and theorems to write a proof.
Number and Operations Geometry	The student has not demonstrated an ability to use and understand vector representations.	The student connects approximate values to the symbol for pi. The student identifies vectors in various representations. The student performs operations on vectors algebraically.	The student correctly applies pi in problem solving. The student recognizes and uses properties of equality/congruence in problem solving and basic proofs. The student performs operations on vectors graphically.	The student recognizes and uses properties of equality/congruence in problem solving and complex proofs. The student recognizes and applies real number properties to vector operations.

Algebra Geometry	The student has not demonstrated an ability to understand the relationship between geometry and algebra.	The student uses the midpoint, distance, and slope formulas given two points. The student recognizes a single transformation given a diagram. The student graphs a circle given its center and radius.	The student uses the midpoint, distance, and slope formulas to solve contextual problems. The student uses coordinate geometry to prove characteristics of polygonal figures given the figure in a coordinate plane. The student identifies the image of a transformation given the coordinates of the pre-image. The student graphs a circle given its equation in standard form.	The student uses coordinate geometry to prove theorems about general polygonal figures. The student describes algebraically the effect of a single transformation on two-dimensional geometric shapes in the coordinate plane. The student writes the equation of circle in standard form from a description or its graph.
Geometry and Measurement Geometry	The student has not demonstrated a competency in developing geometric intuition and visualization. The student is not able to apply geometric properties.	The student identifies and describes geometric properties of plane figures (including points, lines, and polygons). The student solves basic problems involving congruency, similarity, right triangles and circles. The student determines the sine, cosine, and tangent ratios of an acute angle of a right triangle given the side lengths. The student computes measures for two-dimensional and three-dimensional figures.	The student applies geometric properties of angles, parallel lines, polygons, circles, two-dimensional transformations, and congruency and similarity of triangles to solve problems and justify reasoning in proofs. The student uses tools of right triangle trigonometry to solve basic problems. The student computes the surface area and volume of solids using a cross section.	The student can differentiate between Euclidean and non-Euclidean geometries. The student interprets properties and proves theorems involving polygons and other geometric figures. The student identifies, describes and applies transformations on a three-dimensional shape. The student writes proofs and/or solves problems using definitions, postulates, and theorems about points, lines, angles, and planes. The student uses tools of right triangle trigonometry to solve contextual problems, including the surface area and volume of solids.

Data Analysis, Statistics, and Probability Geometry	The student has not demonstrated an understanding of the basic principles of geometric probability.	The student estimates or calculates simple geometric probabilities using a pie chart.	The student calculates simple geometric probabilities using area given a visual representation.	The student solves contextual problems involving geometric probability using area.