Geometry/Geometry Honors

Unit 1: Building Blocks of Geometry

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to:
G.2A determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint; and
G.2B derive and use the distance, ~~slope~~, and midpoint formulas to verify geometric relationships, including congruence of segments ~~and parallelism or perpendicularity of pairs of lines.~~

The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:
G.4A distinguish between undefined terms, definitions, postulates, conjectures, and theorems.
The student uses constructions to validate conjectures about geometric figures. The student is expected to:
G.5B construct congruent segments, congruent angles, a segment bisector, an angle bisector, ~~perpendicular lines, the~~ perpendicular bisector of a line segment~~, and a line parallel to a given line through a point not on a line~~ using a compass and a straightedge; and
G.5C use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6A ~~verify theorems about~~ angles formed by the intersection of lines and line segments, including vertical angles, ~~and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and~~ apply these relationships to solve problems.

Unit Big Ideas/Learning Targets

- I can make sense of and communicate using the basic terms and notation of Geometry.
- I can derive and use the distance and midpoint formulas to verify congruence of segments and determine coordinate location. I can justify my thinking with logical arguments.
- I can apply relationships about angles formed by the intersection of two lines and line segments to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can create and use constructions to make conjectures about geometric relationships.

Geometry/Geometry Honors

Unit 2: It's Only Logical

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to:
G.2B ~~derive and~~ use ~~the distance~~, slope, ~~and midpoint~~ formulas to verify geometric relationships, including ~~congruence of segments and~~ parallelism or perpendicularity of pairs of lines; and
G.2C determine an equation of a line parallel or perpendicular to a given line that passes through a given point.

The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:
G.4B identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse;
G.4C verify that a conjecture is false using a counterexample; and
G.4D compare geometric relationships between Euclidean and spherical geometries, including parallel lines ~~and the sum of the angles in a triangle.~~

The student uses constructions to validate conjectures about geometric figures. The student is expected to:
G.5A investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, ~~criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles~~ choosing from a variety of tools; and
G.5B construct ~~congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and~~ a line parallel to a given line through a point not on a line using a compass and a straightedge.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6A verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and ~~prove equidistance between the endpoints of a segment and points on its perpendicular bisector and~~ apply these relationships to solve problems.

Unit Big Ideas/Learning Targets

- I can analyze patterns in order to discover relationships and make conjectures. I can verify that a conjecture is false using a counterexample.
- I can describe mathematical relationships by writing and determining the validity of a conditional statement and its converse, inverse, and contrapositive. I can recognize and explain the connection between a biconditional

statement and a true conditional statement with a true converse.

- I can use deductive reasoning to make valid conclusions. I can communicate and justify my thinking using two-column, paragraph, or flow charts to justify conjectures.
- I can verify theorems about the relationships among angles formed by parallel lines cut by a transversal and use these geometric relationships to solve problems. I can communicate and justify my thinking using two-column, paragraph, or flow charts to justify conjectures.
- I can construct parallel and perpendicular lines using a compass and straightedge to validate conjectures about geometric figures.
- I can derive and use the slope formula to verify and write equations of parallel and perpendicular lines. I can explain my thinking with logical arguments.
- I can compare the properties of parallel lines in different geometric systems. I can create and use a representation to communicate my thinking.

Geometry/Geometry Honors

Unit 3: Tri and Tri Again

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1A apply mathematics to problems arising in everyday life, society, and the workplace;
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses constructions to validate conjectures about geometric figures. The student is expected to:
G.5A investigate patterns to make conjectures about geometric relationships, including ~~angles formed by parallel lines cut by a transversal~~, criteria required for triangle congruence, special segments of triangles, ~~diagonals of quadrilaterals,~~ interior and exterior angles of polygons, ~~and special segments and angles of circles~~ choosing from a variety of tools; and
G.5C use the constructions of ~~congruent segments, congruent angles,~~ angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6A ~~verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and~~ prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems;
G.6B prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions; and
G.6D verify theorems about the relationships in triangles, including ~~proof of the Pythagorean Theorem~~, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems.

Unit Big Ideas/Learning Targets

- I can make and justify conjectures about the relationship of interior and exterior angles of a triangle to solve problems.
- I can make and justify conjectures about the relationship of base angles of an isosceles triangle to solve problems.
- I can analyze and verify theorems about the relationships of the midsegments of a triangle and use these relationships to solve problems.
- I can use the constructions of angle bisectors and perpendicular bisectors to make and justify conjectures about geometric relationships and use the conjectures to solve problems. I can prove the endpoints of a segment and points on its perpendicular bisector are equidistant.
- I can analyze and verify theorems about the relationships of the medians and altitudes of a triangle and use these relationships to solve problems.
- I can determine if two triangles are congruent by comparing their corresponding sides and angles and use this to solve problems.
- I can prove two triangles are congruent by the Side-Side-Side (SSS) and Side-Angle-Side (SAS) Postulates.
- I can prove two triangles are congruent by the Angle-Side-Angle (ASA) and Angle-Angle-Side (AAS) Postulates.
- I can prove two triangles are congruent by the Hypotenuse-Leg (HL) Postulate.
- I can prove two triangles are congruent by selecting the appropriate postulate from SSS, SAS, ASA, AAS, and HL and by using the corresponding parts of congruent triangles.

Geometry/Geometry Honors

Unit 4: Do You See What I See?

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1A apply mathematics to problems arising in everyday life, society, and the workplace;
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:
G.3A describe and perform transformations of figures in a plane using coordinate notation;
G.3B determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane;
G.3C identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane; and
G.3D identify and distinguish between reflectional and rotational symmetry in a plane figure.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6C apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles;

The student uses the process skills in applying similarity to solve problems. The student is expected to:
G.7A apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles; and
G.7B apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.8A prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems;

Unit Big Ideas/Learning Targets

- I can describe and perform translations, reflections, and rotations of figures in a plane using coordinate notation.
- I can identify and distinguish between reflectional and rotational symmetry in a plane figure.
- I can describe and perform dilations of figures in a plane using coordinate notation.
- I can determine the image or pre-image of a given two-dimensional figure under a composition of transformations. I can identify the sequence of transformations that will carry a pre-image onto an image on and off the coordinate plane.
- I can identify congruent figures and their corresponding sides and angles when using composition of rigid

transformations.

- I can identify similar figures and their proportional sides and corresponding angles when using a dilation.
- I can prove two triangles are similar using Angle-Angle (AA), Side-Angle-Side (SAS), and Side-Side-Side (SSS) Similarity Theorems and apply these theorems to solve problems.
- I can prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems.

Geometry/Geometry Honors

Unit 5: We're On The Right Track

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1A apply mathematics to problems arising in everyday life, society, and the workplace;
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:
G.4D compare geometric relationships between Euclidean and spherical geometries, ~~including parallel lines~~ and the sum of the angles in a triangle.

Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:
G.5D verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6D verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, ~~the sum of interior angles, base angles of isosceles triangles, midsegments, and medians,~~ and apply these relationships to solve problems; and

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.8B identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.

The student uses the process skills to understand and apply relationships in right triangles. The student is expected to:
G.9A determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems; and
G.9B apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.

Unit Big Ideas/Learning Targets

- I can compare the sum of the angles in a triangle in different geometric systems. I can create and use a representation to communicate my thinking.
- I can verify the Triangle Inequality Theorem using constructions and apply the theorem to solve problems, determine the reasonableness of the solution, and justify my thinking.
- I can verify the Pythagorean Theorem. I can apply the Pythagorean Theorem, including Pythagorean triples, to solve problems, determine the reasonableness of the solution, and justify my thinking.

- I can apply similar right triangles to solve problems, determine the reasonableness of the solution, and justify my thinking.
- I can apply the relationships in special right triangles to solve problems, determine the reasonableness of the solution, and justify my thinking.
- I can apply the trigonometric ratios sine, cosine, and tangent to solve problems, determine the reasonableness of the solution, and justify my thinking.

Geometry/Geometry Honors

Unit 6: All “GON”e

Texas Essential Knowledge and Skills (TEKS)

Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

G.1A apply mathematics to problems arising in everyday life, society, and the workplace;

G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:
G.5A investigate patterns to make conjectures about geometric relationships, ~~including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles,~~ diagonals of quadrilaterals, interior and exterior angles of polygons~~, and special segments and angles of circles~~ choosing from a variety of tools;

The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
G.6E prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.

The student uses the process skills to recognize characteristics and dimensional changes of two- and ~~three-dimensional~~ figures. The student is expected to:
G.10B determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, ~~surface area, or volume,~~ including proportional and non-proportional dimensional change.

The student uses the process skills in the application of formulas to determine measures of two- ~~and three-dimensional~~ figures. The student is expected to:
G.11A apply the formula for the area of regular polygons to solve problems using appropriate units of measure;
G.11B determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure.

Unit Big Ideas/Learning Targets

- I can use the characteristics of quadrilaterals to solve problems. I can explain and justify my answer using precise mathematical language.
- I can prove a quadrilateral is a parallelogram, rectangle, square, or rhombus by using their characteristics and special relationships.
- I can determine and describe how changes in the linear dimensions of a shape affect its perimeter and area.
- I can apply the formula for the area of regular polygons to solve problems.
- I can determine the area of composite two-dimensional figures to solve problems.

Geometry/Geometry Honors

Unit 7: That Figur3D

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
G.1A apply mathematics to problems arising in everyday life, society, and the workplace;

G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to:
G.10A identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes; and
G.10B determine and describe how changes in the linear dimensions of a shape affect its ~~perimeter, area,~~ surface area, or volume, including proportional and non-proportional dimensional change.

The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to:
G.11C apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure; and
G.11D apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.

Unit Big Ideas/Learning Targets

- I can identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres. I can identify three-dimensional objects generated by rotations of two-dimensional shapes.
- I can apply total and lateral surface area formulas of prisms and cylinders to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply volume formulas for prisms and cylinders to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply total and lateral surface area formulas of pyramids and cones to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply volume formulas for pyramids and cones to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply the surface area and volume formula for spheres to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply volume, total surface area, and lateral surface area formulas of three-dimensional figures, including composite figures, to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can determine and describe how changes in the linear dimensions of a shape affect its surface area or volume, including proportional and non-proportional dimensional change.

Geometry/Geometry Honors

Unit 8: Circle Up

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

G.1A apply mathematics to problems arising in everyday life, society, and the workplace;
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
G.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas; and
G.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to:
G.12A apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems;
G.12B apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems;
G.12C apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems;
G.12D describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle; and
G.12E show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$

Unit Big Ideas/Learning Targets

- I can describe the radian measure of an angle.
- I can use proportions to solve problems involving lengths in circles. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can use proportions to solve problems involving area in circles. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply theorems about tangents to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply theorems about chords to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply theorems about inscribed angles to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply theorems about secants to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply theorems about circles to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can determine the equation for the graph of a circle.

Geometry/Geometry Honors

Unit 9: What are the Chances?

Texas Essential Knowledge and Skills (TEKS)

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

G.1A apply mathematics to problems arising in everyday life, society, and the workplace;
G.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
G.1E create and use representations to organize, record, and communicate mathematical ideas;
G.1F analyze mathematical relationships to connect and communicate mathematical ideas.

The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to:
G.13A develop strategies to use permutations and combinations to solve contextual problems;
G.13B determine probabilities based on area to solve contextual problems;
G.13C identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;
G.13D apply conditional probability in contextual problems; and
G.13E apply independence in contextual problems.

Unit Big Ideas/Learning Targets

- I can determine probabilities based on area to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can develop strategies to use permutations and combinations when solving problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can identify independent events. I can compute compound probabilities to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.
- I can apply conditional probability to solve problems. I can explain my reasoning using logical arguments and determine reasonableness of solutions.