

# Syllabus for Geometry – Semester 1

**Course Number:** 153001

**Course Title:** Geometry Semester 1

## Communications

All communication with your teacher will be through the utilization of electronic tools such as email and discussion boards. Your assignments will be submitted directly into the Blackboard Learning Management System. You will receive a Welcome email from your teacher when your course is ready for you. You may email your teacher at any time with questions that you might have.

## Course Description

The Geometry course is a comprehensive look at the study of geometric concepts including the basic elements of geometry, proofs, parallel and perpendicular lines, the coordinate plane, triangles, quadrilaterals, polygons, circles, trigonometry, congruence and similarity, surface area, volume and transformations.

## Course Objectives and Student Learning Outcomes

Students who successfully complete the course will be able to:

1. Identify and apply the properties of rays and angles.
2. Identify and apply the properties of parallel and perpendicular lines.
3. Write conditional statements.
4. Write proofs.
5. Write and graph linear functions.
6. Identify and apply the properties of triangles.
7. Identify and apply the properties of quadrilaterals.
8. Identify and apply the properties of polygons.
9. Identify and apply the properties of circles.
10. Prove figures are congruent.
11. Prove figures are similar.
12. Apply transformations to various figures.

## Prerequisites

None

## Technical Requirements

### ***Browsers:***

Internet Explorer 8 or 9 (Windows) (Must not be in compatibility mode)

Safari 4 or higher (Mac OSX)

Firefox Extended Support Release (ESR) is recommended for stability, but both the ESR and final release channel are supported (both Mac and Windows)

Google Chrome stable channel (Windows only - not supported on Mac at this time due to Java incompatibility)

The following requirements must also be met:

	<b>Popup blocking must be disabled</b> <b>JavaScript must be enabled</b>
<b>Operating Systems:</b>	Microsoft Windows XP or higher (Vista, 7) Macintosh OS X 10.5 or higher (10.6, 10.7)
<b>RAM:</b>	512MB or higher
<b>Resolution:</b>	1024 X 576 or higher
<b>Media:</b>	Soundcard and Speakers/Headphones Microphone required for certain courses
<b>Plugins:</b>	Sun Java 7 Flash Player Version 10 or higher QuickTime Version 7 or higher Real Player required for certain courses Jaws 11 or higher (for accessibility)

## Course Materials

### Software: Whiteboard and GCalc

During the course of this class, you will be asked to submit assignments that require graphing. If you have access to a scanner, you can draw your graphs by hand and then submit them through the dropbox. If you do not have a scanner, we have provided the Whiteboard graphing utility for your use.

It is also advised that you have a graphing calculator for this course, but it is not required. A program called Gcalc will be available to you throughout the course. You can also find the free graphing program online at [GCalc - Java Mathematical Graphing System](#). Choose "Gcal 2 Applet" in order to see the graphing utility.

The following is what you will see throughout the course when you open GCalc. It has been embedded into the course.

You can then choose from one of the following plugins.

- Graph Plugin: Allows you to graph a linear, quadratic, square root, etc. function.
- Inequalities Plugin: Allows you to graph inequalities.
- Implicit Function Plugin: Allows you to graph functions in terms of x and y.
- Polar Graph Plugin: Allows you to graph polar functions.
- Parametric Graph Plugin: Allows you to graph parametric functions.
- Table Plugin: Allows you to enter data into a table form.

## Course Management Policies

The instructor adapts to the district IEP whenever instructionally and technically possible.

As a first step in collecting all of the information that is needed to work with each student effectively, we ask that the student, or the receiving district site coordinator on the student's behalf, log onto the website and complete the online registration process. Please complete this registration process as soon as possible to allow time to set up the course and send the student the information to access it and begin working.

### **Academic Integrity/Copyright Policy**

Academic integrity violations, plagiarism, and copyright violations will not be tolerated. The Introductory Unit of your course will teach you the details of PISD's expectations on such topics. Your teacher will utilize plagiarism check tools throughout the course.

### **Online Etiquette ("Netiquette")**

Netiquette is meant to help you communicate professionally and effectively in an online collaborative setting. Students will follow all guidelines relating to internet etiquette and will communicate respectfully with all people. The Introductory Unit of your course will teach you the details of PISD's expectations on such topics. Your course will contain discussion boards, journals, blogs, and/or wikis where your "netiquette" is important.

### **Privacy Policy**

Plano ISD's FERPA policy may be found at <http://pol.tasb.org/Policy/Code/312?filter=FL>

### **Grading and Evaluation**

The Geometry course has a total of 2034 possible points. The student's grade will be calculated by dividing the total number of points that he/she earns, divided by 2034. Example: if the student accumulates 1855 points throughout the course, his/her grade will be:

$$1855 \div 2034 = 0.912; \text{ This yields a grade of 91\%.}$$

### **Assessments**

All courses contain a number of self-assessments (allowing the student to gauge his/her understanding of the material before proceeding to a graded assessment). Graded assessments include quizzes as well as exams.

### **Class Participation**

Every student will have a specific schedule for completing and submitting assignments and tests. Students are required to adhere to their schedule. Students must maintain consistent email communication with their teacher. Students must complete the discussion assignments and collaborative activities throughout the course. Students who are not adhering to their course schedule, or students who are not maintaining the basic requirements of participation, such as maintaining email communication with their teacher, may be dropped from the course.

### **Grading Scale**

90 – 100 = A

80 – 89 = B

70 – 79 = C

Below 70 – Not Passing

**Drop Policy**

Students may choose to drop the course within 15 days from their start date without penalty. Notify your school's/district's site coordinator to have him/her indicate such a drop situation to TxVSN.

Unit	Course Content and Assignments
<p><b>Unit 1</b></p>	<p><b>Introduction to Geometry</b></p> <p><b>Unit Objectives</b></p> <ol style="list-style-type: none"> <li>1. Define and use the properties of points</li> <li>2. Define and apply the properties of lines and line segments</li> <li>3. Define and apply the properties of planes</li> <li>4. Construct a segment bisector</li> <li>5. Apply the number line</li> <li>6. Define and apply absolute value</li> <li>7. Measure a line segment using a number line and absolute value</li> <li>8. Define and apply the properties of rays</li> <li>9. Define and apply the properties of angles</li> <li>10. Define and apply how angles are measured</li> <li>11. Classify angles</li> <li>12. Define and apply supplementary and complimentary angles</li> <li>13. Define and apply congruent angles</li> <li>14. Define and construct a bisector of an angle</li> <li>15. Define and apply perpendicular lines</li> <li>16. Define and apply parallel lines</li> <li>17. Describe the difference between Euclidean and Non-Euclidean Geometry</li> </ol> <p><b>Assignments</b></p> <p>Section A: Basic Elements of Geometry</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Lines and Line Segments</li> <li>• Flashcards: Points, Lines, and Planes</li> <li>• Writing Assignment: Points, Lines, and Planes</li> <li>• Writing Assignment: Construct a Segment Bisector</li> </ul> <p>Section B: Measuring Segments</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Matching: Locations of Numbers on the Number Line</li> <li>• Multiple Choice: Absolute Values</li> <li>• Example: Midpoints of Line Segments and Distance</li> </ul>

Unit	Course Content and Assignments
	<ul style="list-style-type: none"> <li>• Tutorial: Measuring Segments Using a Number Line and Absolute Value</li> <li>• Example: Length of a Line Segment</li> </ul> <p>Section C: Rays and Angles</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: Naming Angles</li> <li>• Matching: Naming Angles</li> <li>• Matching: Finding Angle Measures</li> <li>• Think and Click: Supplementary and Complementary Angles</li> <li>• Writing Assignment: Angles</li> <li>• Bucket Game: Identifying Angles</li> <li>• Example: Congruent Angles</li> <li>• Think and Click: Angle Bisectors</li> <li>• Writing Assignment: Construct an Angle Bisector</li> </ul> <p>Section D: Parallel and Perpendicular Lines</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Vertical Angles</li> <li>• Example: Perpendicular Lines</li> <li>• Think and Click: Perpendicular Lines and Angle Bisectors</li> <li>• Example: Perpendicular Bisectors</li> <li>• Think and Click: Perpendicular Bisectors</li> <li>• Multiple Choice: Perpendicular Bisectors</li> <li>• Tutorial: Parallel Lines and Transversals</li> <li>• Flashcards: Parallel Lines and Transversals</li> <li>• Crossword: Vocabulary</li> </ul> <p><b>Assessments</b></p> <ul style="list-style-type: none"> <li>• Assignment: Points, Lines, and Planes (50)</li> <li>• Writing Assignment: Construct a Segment Bisector (50)</li> <li>• Basic Elements of Geometry Quiz (20)</li> <li>• Measuring Segments Quiz (20)</li> <li>• Writing Assignment: Angles (50)</li> <li>• Writing Assignment: Construct an Angle Bisector (50)</li> </ul>

Unit	Course Content and Assignments
	<ul style="list-style-type: none"> <li>• Rays and Angles Quiz (20)</li> <li>• Parallel and Perpendicular Lines Quiz (20)</li> <li>• Introduction to Geometry Unit Exam (100)</li> </ul> <p><b>Discussion</b>  Math Tutoring Lab – The Math Tutoring Lab is a discussion that can be found in each unit. Visit the Math Tutoring Lab and post any content related questions for your teacher or for the other students in the course. Please monitor the discussion on a daily basis and answer questions when you can. Use this tool as often as possible and work together to understand the content.</p>
<p><b>Unit 2</b></p>	<p><b>Introduction to Proof</b></p> <p><b>Unit Objectives</b></p> <ol style="list-style-type: none"> <li>1. Define and apply inductive reasoning</li> <li>2. Define and apply deductive reasoning</li> <li>3. Define and construct conditional statements and identify the hypothesis and conclusion</li> <li>4. Define and construct a converse, inverse and contrapositive of a conditional statement</li> <li>5. Define and construct biconditional statements</li> <li>6. Develop truth tables</li> <li>7. Recall the properties of equality and congruence from algebra</li> <li>8. Define theorems, postulates, and definitions</li> <li>9. Develop informal and 2-Column proofs along with proofs by contradiction</li> <li>10. Develop counterexamples</li> </ol> <p><b>Assignments</b></p> <p>Section A: Reasoning in Geometry</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Matching: Recognizing Number Patterns By Inductive Method</li> <li>• Think and Click: Geometric Induction</li> <li>• Think and Click: Statements and their Values</li> <li>• Example: Conditional Statements</li> <li>• Think and Click: Conditional Statements</li> <li>• Activity: Conditional Statements</li> <li>• Think and Click: Converse and Biconditional Statements</li> </ul>

Unit	Course Content and Assignments
	<ul style="list-style-type: none"> <li>• Memory Game: Conditional Statements</li> <li>• Think and Click: Truth Tables</li> <li>• Tutorial: Truth Tables</li> <li>• Writing Assignment: Conditional Statements</li> </ul> <p>Section B: Informal and Two Column Proofs</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example 1: Properties in Geometry</li> <li>• Example 2: Properties in Geometry</li> <li>• Duck Blind Game: Properties in Geometry</li> <li>• Properties Quiz</li> <li>• Think and Click: Proof</li> <li>• Avatar: Two Colum Proofs</li> <li>• Fill in the Blanks: Two-column Proofs</li> <li>• Writing Assignment: Two-column Proofs</li> <li>• Think and Click: Review</li> </ul> <p><b>Assessments</b></p> <ul style="list-style-type: none"> <li>• Introduction to Reasoning Quiz (30)</li> <li>• Conditional Statements Quiz (30)</li> <li>• Writing Assignment: Conditional Statements (50)</li> <li>• Reasoning in Geometry Quiz (20)</li> <li>• Properties Quiz (30)</li> <li>• Proofs Quiz (30)</li> <li>• Writing Assignment: Two Column Proofs (40)</li> <li>• Informal and Two Column Proofs Quiz (20)</li> <li>• Introduction to Proof Unit Exam (100)</li> </ul> <p><b>Discussion</b></p> <p>Math Tutoring Lab – The Math Tutoring Lab is a discussion that can be found in each unit. Visit the Math Tutoring Lab and post any content related questions for your teacher or for the other students in the course. Please monitor the discussion on a daily basis and answer questions when you can. Use this tool as often as possible and work together to understand the content.</p>
<b>Unit 3</b>	<b>Lines and the Coordinate Plane</b>



Unit	Course Content and Assignments
	<p><b>Unit Objectives</b></p> <ol style="list-style-type: none"> <li>1. Describe and identify the properties of the coordinate plane</li> <li>2. Graph points on a coordinate plane</li> <li>3. Construct a line parallel to an axis of the coordinate plane</li> <li>4. Apply the Distance Formula</li> <li>5. Apply the Midpoint Formula</li> <li>6. Find a point on a line segment</li> <li>7. Find the slope between two points</li> <li>8. Find the slope of a line on a graph</li> <li>9. Solve problems using slope</li> <li>10. Write the equation of a line given various information</li> <li>11. Graph a line on a coordinate plane</li> <li>12. Construct perpendicular lines</li> <li>13. Solve problems using linear graphs</li> </ol> <p><b>Assignments</b></p> <p>Section A: The Coordinate Plane</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: The Coordinate Plane</li> <li>• Matching: Coordinate Plane Vocabulary</li> <li>• Example: Coordinates of Points on the Coordinate Plane</li> <li>• Think and Click: Graphing Coordinates</li> <li>• Writing Assignment: Construct a Parallel Line</li> <li>• Tutorial: The Distance Formula</li> <li>• Think and Click: The Distance Formula</li> <li>• Blitz Game: Midpoint and Distance</li> <li>• Writing Assignment: Distance and Midpoint Formulas</li> <li>• Think and Click: Directed Line Segments</li> </ul> <p>Section B: Slope of a Line</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Slope Between Two Points</li> <li>• Bucket Game: Positive, Negative Zero and Undefined Slope</li> </ul>

Unit	Course Content and Assignments
	<ul style="list-style-type: none"> <li>• Example: Slope of a Line on a Graph</li> <li>• Matching: Slope of a Line on a Graph</li> <li>• Think and Click: Problem Solving with Slope</li> </ul> <p>Section C: Graphing the Equation of a Line</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Equation of a Line</li> <li>• Think and Click: Slope-Intercept vs. Point-Slope Form</li> <li>• Flashcards: Parallel and Perpendicular Lines</li> <li>• Tutorial: Graphing Lines on the Coordinate Plane</li> <li>• Example: Graphing Lines in Slope-Intercept Form</li> <li>• Memory Game: Equation of a Graph</li> <li>• Example: Graphing Lines Using Intercepts</li> <li>• Think and Click: Problem Solving</li> <li>• Ordering: Constructing Perpendicular Lines</li> <li>• Writing Assignment: Construct Perpendicular Lines</li> <li>• Writing Assignment: Writing Equations</li> </ul> <p><b>Assessments</b></p> <ul style="list-style-type: none"> <li>• Writing Assignment: Construct a Parallel Line (50)</li> <li>• Writing Assignment: Distance and Midpoint Formulas (50)</li> <li>• The Coordinate Plane Quiz (22)</li> <li>• Introduction to Slope Quiz (30)</li> <li>• Slope of a Line Quiz (20)</li> <li>• Writing Assignment: Construct a Perpendicular Line (50)</li> <li>• Writing Assignment: Writing Equations (50)</li> <li>• Graphing Equations of a Line Quiz (20)</li> <li>• Lines and the Coordinate Plane Unit Exam (100)</li> </ul> <p><b>Discussion</b></p> <p>Math Tutoring Lab – The Math Tutoring Lab is a discussion that can be found in each unit. Visit the Math Tutoring Lab and post any content related questions for your teacher or for the other students in the course. Please monitor the discussion on a daily basis and answer questions when you can. Use this tool as often as possible and work together to understand the content.</p>

Unit	Course Content and Assignments
<p><b>Unit 4</b></p>	<p><b>Triangles</b></p> <p><b>Unit Objectives</b></p> <ol style="list-style-type: none"> <li>1. Classify triangles based on their angles and sides</li> <li>2. Describe and apply the properties of isosceles and equilateral triangles</li> <li>3. Apply the Triangle Angle-Sum Theorem</li> <li>4. Apply the Exterior-Angle Theorem</li> <li>5. Describe and apply the properties of altitudes, medians, and bisectors of triangles</li> <li>6. Apply Triangle Congruence Postulates</li> <li>7. Apply CPCTC Postulate to congruent triangles</li> <li>8. Describe and apply the properties of a <math>45^\circ</math>-<math>45^\circ</math>-<math>90^\circ</math> Special Right Triangle</li> <li>9. Describe and apply the properties of a <math>30^\circ</math>-<math>60^\circ</math>-<math>90^\circ</math> Special Right Triangle</li> <li>10. Describe and apply the Pythagorean Theorem</li> <li>11. Describe and apply the Side-Angle Inequality of Triangles</li> <li>12. Describe and apply the Exterior-Angle Inequality of Triangles</li> <li>13. Describe and apply the Triangle Inequality</li> <li>14. Describe and apply the Pythagorean Inequality Theorem</li> <li>15. Calculate the perimeter and area of a triangle</li> </ol> <p><b>Assignments</b></p> <p>Section A: Introduction to Triangles</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Flash Cards: Classifying Triangles</li> <li>• Think and Click: Triangle Sum Theorem Preparation</li> <li>• Example: Triangle Sum Theorem</li> <li>• Think and Click: Triangle Sum Theorem Problems</li> <li>• Example: Exterior Angle Theorem</li> <li>• Think and Click: Exterior Angle Theorem</li> <li>• Multiple Choice: Angles in a Triangle</li> <li>• Tutorial: Altitudes, Medians and Bisectors</li> <li>• Flashcard: Angles, Medians and Bisectors</li> <li>• Writing Assignment: Introduction to Triangles</li> </ul>

Unit	Course Content and Assignments
	<p>Section B: Congruent Triangles</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: Proving Triangles Congruent</li> <li>• Think and Click: Proving Triangles Congruent</li> <li>• Multiple Choice: Congruence Postulates</li> <li>• Think and Click: CPCTC</li> <li>• Flashcards: CPCTC</li> <li>• Writing Assignment: Proofs on Congruent Triangles</li> </ul> <p>Section C: Right Triangles and the Pythagorean Theorem</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Tutorial: 45-45-90 Right Triangle</li> <li>• Example: 45-45-90 Right Triangle</li> <li>• Tutorial: 30-60-90 Right Triangle</li> <li>• Example: 30-60-90 Right Triangles</li> <li>• Math Blitz Game: Special Right Triangles</li> <li>• Writing Assignment: Special Right Triangles</li> <li>• Example: Real World Applications of the Pythagorean Theorem</li> <li>• Flashcards: Real World Applications of the Pythagorean Theorem</li> </ul> <p>Section D: Triangle Inequalities</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Side Angle Inequality</li> <li>• Bucket Game: Comparing Angles and Side Lengths in Triangles</li> <li>• Avatar: Triangle Inequality</li> <li>• Example: Triangle Inequality</li> <li>• Multiple Choice: Triangle Inequality</li> <li>• Bucket Game: Pythagorean Inequality Theorem</li> <li>• Example: Side Splitter Theorem</li> </ul> <p>Section E: Perimeter and Area of Triangles</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: Perimeter of a Triangle: Special Triangles</li> <li>• Think and Click: Perimeter of a Triangle</li> </ul>

Unit	Course Content and Assignments
	<ul style="list-style-type: none"> <li>• Example: Area of a Triangle: Special Triangles</li> <li>• Think and Click: Area of a Triangle</li> <li>• Example: Perimeter and Area of an Equilateral Triangle</li> <li>• Flashcard: Perimeter and Area of Triangles</li> </ul> <p><b>Assessments</b></p> <ul style="list-style-type: none"> <li>• Writing Assignment: Introduction to Triangles (50)</li> <li>• Introduction to Triangles Quiz (20)</li> <li>• Writing Assignment: Proofs on Congruent Triangles (50)</li> <li>• Congruent Triangles Quiz (20)</li> <li>• Writing Assignment: Special Right Triangles (50)</li> <li>• Right Triangles and the Pythagorean Theorem Quiz (20)</li> <li>• Triangle Inequalities Quiz (20)</li> <li>• Perimeter and Area of Triangles Quiz (20)</li> <li>• Triangles Unit Exam (100)</li> </ul> <p><b>Discussion</b></p> <p>Math Tutoring Lab – The Math Tutoring Lab is a discussion that can be found in each unit. Visit the Math Tutoring Lab and post any content related questions for your teacher or for the other students in the course. Please monitor the discussion on a daily basis and answer questions when you can. Use this tool as often as possible and work together to understand the content.</p>
<p><b>Unit 5</b></p>	<p><b>Quadrilaterals and Polygons</b></p> <p><b>Unit Objectives</b></p> <ol style="list-style-type: none"> <li>1. Identify regular and irregular polygons</li> <li>2. Categorize a polygon by the number of sides</li> <li>3. Identify convex and concave polygons</li> <li>4. Find the sum of the interior angles of a polygon</li> <li>5. Find the measure of an interior angle of a polygon</li> <li>6. Define and identify the properties of parallelograms</li> <li>7. Prove a quadrilateral is a parallelogram</li> <li>8. Find the perimeter and area of a parallelogram</li> <li>9. Identify special parallelograms</li> <li>10. Define and identify the properties of squares</li> </ol>

Unit	Course Content and Assignments
	<p>11. Define and identify the properties of a rectangle</p> <p>12. Define and identify the properties of a rhombus</p> <p>13. Find the perimeter and area of squares, rectangles and rhombi</p> <p>14. Define and identify the properties of a trapezoid</p> <p>15. Define and identify the properties of a kite</p> <p>16. Find the perimeter and area of a trapezoid and a kite</p> <p><b>Assignments</b></p> <p>Section A: Polygons</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Flash Cards: Classifying Triangles</li> <li>• Think and Click: Triangle Sum Theorem Preparation</li> <li>• Example: Triangle Sum Theorem</li> <li>• Think and Click: Triangle Sum Theorem Problems</li> <li>• Example: Exterior Angle Theorem</li> <li>• Think and Click: Exterior Angle Theorem</li> <li>• Multiple Choice: Angles in a Triangle</li> <li>• Tutorial: Altitudes, Medians and Bisectors</li> <li>• Flashcard: Angles, Medians and Bisectors</li> <li>• Writing Assignment: Introduction to Triangles</li> </ul> <p>Section B: Parallelograms</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: Parallelograms: Properties of Their Sides</li> <li>• Example: Parallelograms: Properties of Their Angles</li> <li>• Example: Parallelograms: Properties of Their Diagonals</li> <li>• Flashcard: Properties of Parallelograms</li> <li>• Tutorial: Proving a Triangle is a Parallelogram</li> <li>• Multiple Choice: Proving a Triangle is a Parallelogram</li> <li>• Parallelogram Proof Assignment</li> <li>• Example: Perimeter and Area of a Parallelogram</li> <li>• Think and Click: Perimeter and Area of a Parallelogram</li> <li>• Think and Click: Perimeter and Area from Coordinates</li> </ul>

Unit	Course Content and Assignments
	<p>Section C: Squares, Rectangles and Rhombi</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Think and Click: Properties of Squares</li> <li>• Think and Click: Properties of Rectangles</li> <li>• Think and Click: Properties of Rhombi</li> <li>• Tutorial: Identifying a Parallelogram with Coordinates of Vertices Given</li> <li>• Bucket Game: Identifying Parallelograms</li> <li>• Flashcard: Properties of Special Parallelograms</li> <li>• Example: Perimeter and Area of a Rhombi</li> <li>• Flashcard: Perimeter and Area</li> <li>• Vertices of a Parallelogram Assignment</li> </ul> <p>Section D: Trapezoids and Kites</p> <ul style="list-style-type: none"> <li>• Section Warm-Up</li> <li>• Example: Properties of Trapezoids</li> <li>• Flashcard: Properties of Trapezoids</li> <li>• Trapezoid Quiz</li> <li>• Example: Properties of Kites</li> <li>• Think and Click: Properties of Kites</li> <li>• Example: Perimeter and Area of a Kite</li> <li>• Multiple Choice: Perimeter and Area of Trapezoids and Kites</li> </ul> <p><b>Assessments</b></p> <ul style="list-style-type: none"> <li>• Interior Angles Quiz (20)</li> <li>• Exterior Angles Quiz (20)</li> <li>• Polygons Quiz (20)</li> <li>• Parallelogram Proof Assignment (50)</li> <li>• Parallelograms Quiz (20)</li> <li>• Vertices of a Parallelogram Assignment (50)</li> <li>• Squares, Rectangles and Rhombi Quiz (22)</li> <li>• Trapezoid Quiz (20)</li> <li>• Kite Quiz (20)</li> <li>• Trapezoids and Kites Quiz (20)</li> </ul>

<b>Unit</b>	<b>Course Content and Assignments</b>
	<ul style="list-style-type: none"><li data-bbox="464 228 1089 260">• Quadrilaterals and Polygons Unit Exam (100)</li></ul> <p data-bbox="404 285 561 317"><b>Discussion</b></p> <p data-bbox="404 325 1430 520">Math Tutoring Lab – The Math Tutoring Lab is a discussion that can be found in each unit. Visit the Math Tutoring Lab and post any content related questions for your teacher or for the other students in the course. Please monitor the discussion on a daily basis and answer questions when you can. Use this tool as often as possible and work together to understand the content.</p>
<b>Final Exam</b>	<b>Semester 1 Exam (200)</b>



## **§111.41. Geometry, Adopted 2012 (One Credit).**

(a) General requirements. Students shall be awarded one credit for successful completion of this course. Prerequisite: Algebra I.

(b) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on fluency and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will 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. Students will select appropriate tools such as real objects, manipulatives, paper and pencil, and technology and techniques such as mental math, estimation, and number sense to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) In Geometry, students will build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I to strengthen their mathematical reasoning skills in geometric contexts. Within the course, students will begin to focus on more precise terminology, symbolic representations, and the development of proofs. Students will explore concepts covering coordinate and transformational geometry; logical argument and constructions; proof and congruence; similarity, proof, and trigonometry; two- and three-dimensional figures; circles; and probability. Students will connect previous knowledge from Algebra I to Geometry through the coordinate and transformational geometry strand. In the logical arguments and constructions strand, students are expected to create formal constructions using a straight edge and compass. Though this course is primarily Euclidean geometry, students should complete the course with an understanding that non-Euclidean geometries exist. In proof and congruence, students will use deductive reasoning to justify, prove and apply theorems about geometric figures. Throughout the standards, the term "prove" means a formal proof to be shown in a paragraph, a flow chart, or two-column formats. Proportionality is the unifying component of the similarity, proof, and trigonometry strand. Students will use their proportional reasoning skills to prove and apply theorems and solve problems in this strand. The two- and three-dimensional figure strand focuses on the application of formulas in multi-step situations since students have developed background knowledge in two- and three-dimensional figures. Using patterns to identify geometric properties, students will apply theorems about circles to determine relationships between special segments and angles in circles. Due to the emphasis of probability and statistics in the college and career readiness standards, standards dealing with probability have

been added to the geometry curriculum to ensure students have proper exposure to these topics before pursuing their post-secondary education.

(4) These standards are meant to provide clarity and specificity in regards to the content covered in the high school geometry course. These standards are not meant to limit the methodologies used to convey this knowledge to students. Though the standards are written in a particular order, they are not necessarily meant to be taught in the given order. In the standards, the phrase "to solve problems" includes both contextual and non-contextual problems unless specifically stated.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(c) Knowledge and skills.

Knowledge and Skills	Student Expectations	Bloom's Level		TEKS Alignment Evidence
		Guideline	Observed	
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:				
	(A) apply mathematics to problems arising in everyday life, society, and the workplace;	Apply	Apply	Sem. 2 – Unit 2 – Lesson 2.08 Surface Area and Volumes of Pyramids – Part 2 Sem. 2 – Unit 4 – Lesson 4.15 - Circles in the Coordinate Plane – Part 3
	B) 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;	Evaluate	Evaluate	Sem. 1 – Unit 2 – Lesson 2.09 – Algebraic Logic, Part 2
	(C) 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;	Apply	Apply	Sem. 1 – Unit 1 - 1.04 Measuring Length, Part 1 Sem. 1 – Unit 1 - 1.11 Relationships Between Triangles and Circles, Part 1 Sem. 2 – Unit 6 - 6.06 Topology
	D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;	Understand	Understand	Sem. 1 – Unit 1 - 1.15 Using Algebra to Describe Geometry, Part 1 Sem. 1 – Unit 1 - 1.16 Using Algebra to Describe Geometry, Part 2 Sem. 2 – Unit 6 - 6.05 Discuss: Graph Theory
	(E) create and use representations to organize, record, and communicate mathematical ideas;	Create	Create	Sem. 1 – Unit 2 - 2.09 Algebraic Logic, Part 2 Sem. 1 – Unit 5 - 5.14 Proofs and Coordinate Geometry, Part 2
	(F) analyze mathematical relationships to connect and communicate mathematical ideas; and	Analyze	Analyze	Sem. 2 – Unit 6 - 6.10 Projective Geometry
	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	Evaluate	Evaluate	Sem. 1 – Unit 2 - 2.05 Discussion: Reasoning and Argument Sem. 1 – Unit 2 - 2.09 Algebraic Logic, Part 2

(2) Coordinate and transformational geometry. 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:				
	(A) 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;	Apply	Apply	Sem. 1 – Unit 1 - 1.04 Measuring Length, Part 1 Sem. 1 – Unit 3 - 3.18 Slope, Part 2
	(B) 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	Analyze	Analyze	Sem. 1 – Unit 3 - 3.18 Slope, Part 2 Sem. 1 – Unit 5 - 5.12 Using the Distance Formula
	(C) determine an equation of a line parallel or perpendicular to a given line that passes through a given point.	Apply	Apply	Sem. 1 – Unit 3 – 3.19 Graphing the Equation of a Line Sem. 1 – Unit 3 – 3.19 Writing Assignment: Writing Linear Equations
(3) Coordinate and transformational geometry. 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:				
	(A) describe and perform transformations of figures in a plane using coordinate notation;	Apply	Apply	Sem. 2 – Unit 1 - 1.15 Unit 1 Test, Part 2 Sem. 2 – Unit 3 - 3.02 Dilations and Scale Factors, Part 2
	(B) 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;	Apply	Apply	Sem. 1 – Unit 1 - 1.16 Using Algebra to Describe Geometry, Part 2 Sem. 2 – Unit 3 - 3.01 Dilations and Scale Factors, Part 1
	(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane; and	Apply	Apply	Sem. 1 – Unit 1 - 1.14 Transformations, Part 2 Sem. 1 – Unit 1 – 1.14 Writing Assignment Sem. 1 – Unit 1 - 1.16 Using Algebra to Describe Geometry, Part 2
	(D) identify and distinguish between reflectional and rotational symmetry in a plane figure.	Analyze	Analyze	Sem. 1 – Unit 3 - 3.02 Polygons and Symmetry, Part 2

(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:				
	(A) distinguish between undefined terms, definitions, postulates, conjectures, and theorems;	Analyze	Analyze	Sem. 1 – Unit 1 - 1.02 Basic Geometric Terms and Definitions 1 Sem. 1 – Unit 1 - 1.03 Basic Geometric Terms and Definitions, Part 2 Sem. 1 – Unit 1 - 1.09 Bisectors and Line Relationships, Part 2
	(B) 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;	Evaluate	Evaluate	Sem. 1 – Unit 2 - 2.03 Conditional Statements, Part 1 Sem. 1 – Unit 2 - 2.04 Conditional Statements, Part 2 Sem. 1 – Unit 2 - 2.06 Compound Statements and Indirect Proof
	(C) verify that a conjecture is false using a counterexample; and	Analyze	Analyze	Sem. 1 – Unit 2 - 2.06 Compound Statements and Indirect Proof Sem. 1 – Unit 2 – 2.01 Writing Assignment
	(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle.	Analyze	Analyze	Sem. 2 – Unit 6 - 6.08 Spherical Geometry
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:				
	(A) 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;	Apply	Apply	Sem. 1 – Unit 3. - 3.05 Parallel Lines and Transversals, Part 1 Sem. 1 – Unit 3 - 3.13/3.14 Angles in Polygons - 3.15/3.16 Midsegments Sem. 1 – Unit 5 - 5.06 Circumferences and Areas of Circles, Part 2 Sem. 2 – Unit 4 - 4.02 Chords and Arcs, Part 2 Sem. 2 – Unit 4 - 4.06 Inscribed Angles and Arcs, Part 1 Sem. 2 – Unit 4 - 4.07 Inscribed Angles and Arcs, Part 2

	(B) 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;	Create	Create	Sem. 1 – Unit 1 - 1.04 Measuring Length, Part 1 Sem. 1 – Unit 1 - 1.08 Bisectors and Line Relationships, Part 1 Sem. 1 – Unit 1 - 1.09 Bisectors and Line Relationships, Part 2
	(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships; and	Analyze	Analyze	Sem. 1 – Unit 1 - 1.04 Measuring Length, Part 1 Sem. 1 – Unit 1 – 1.04 Writing Assignment Sem. 1 – Unit 1 - 1.08 Bisectors and Line Relationships, Part 1 Sem. 1 – Unit 1 - 1.09 Bisectors and Line Relationships, Part 2
	(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.	Evaluate	Evaluate	Sem. 1 – Unit 4 - 4.16 The Triangle Inequality Theorem
(6) Proof and congruence. 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:				
	(A) 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;	Evaluate	Evaluate	Sem. 1 – Unit 1 - 1.08 Bisectors and Line Relationships, Part 1 Sem. 1 – Unit 1 - 1.09 Bisectors and Line Relationships, Part 2 Sem. 1 – Unit 3 - 3.05 Parallel Lines and Transversals, Part 1 Sem. 1 – Unit 3 - 3.06 Parallel Lines and Transversals, Part 2 Sem. 1 – Unit 3 - 3.08 Converses of Parallel Line Properties, Part 1 Sem. 1 – Unit 3 - 3.09 Converses of Parallel Line Properties, Part 2

	(B) 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;	Evaluate	Evaluate	Sem. 1 – Unit 4 - 4.03 Triangle Congruence: SSS, SAS, and ASA, Part 1 Sem. 1 – Unit 4 - 4.04 Triangle Congruence: SSS, SAS, and ASA, Part 2 Sem. 1 – Unit 4 - 4.07 Triangle Congruence: AAS and HL
	(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles;	Apply	Apply	Sem. 1 – Unit 4 - 4.01 Congruent Polygons and Their Corresponding Parts, Part 1 Sem. 1 – Unit 4 - 4.02 Congruent Polygons and Their Corresponding Parts, Part 2
	(D) 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	Evaluate	Evaluate	Sem. 1 – Unit 5 - 5.08 The Pythagorean Theorem, Part 2 Sem. 1 – Unit 5 - 5.13 Proofs and Coordinate Geometry, Part 1 Sem. 1 – Unit 5 - 5.14 Proofs and Coordinate Geometry, Part 2
	(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.	Evaluate	Evaluate	Sem. 1 – Unit 4 - 4.09 Using Triangles to Understand Quadrilaterals, Part 1 Sem. 1 – Unit 4 - 4.10 Using Triangles to Understand Quadrilaterals, Part 2
<b>(7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to:</b>				
	(A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles; and	Apply	Apply	Sem. 2 – Unit 3 - 3.01 Dilations and Scale Factors, Part 1 Sem. 2 – Unit 3 - 3.02 Dilations and Scale Factors, Part 2
	(B) apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.	Apply	Apply	Sem. 1 – Unit 3 - 3.06 Parallel Lines and Transversals, Part 2 Sem. 1 – Unit 3 - 3.09 Converses of Parallel Line Properties, Part 2
<b>(8) Similarity, proof, and trigonometry. 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:</b>				

	(A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems; and	Evaluate	Evaluate	Sem. 1 – Unit 3 - 3.06 Parallel Lines and Transversals, Part 2 Sem. 2 – Unit 3 - 3.07 Triangle Similarity, Part 2 Sem. 1 – Unit 3 - 3.09 Converses of Parallel Line Properties, Part 2
	(B) 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.	Apply	Apply	Sem. 2 – Unit 3 - 3.11 Indirect Measurement and Additional Similarity Theorems, Part 1 Sem. 2 – Unit 3 – 3.11 Writing Assignment: Geometric Mean
(9) Similarity, proof, and trigonometry. The student uses the process skills to understand and apply relationships in right triangles. The student is expected to:				
	(A) 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	Apply	Apply	Sem. 2 – Unit 5 - 5.01/5.02 Tangents Sem. 2 – Unit 5 - 5.03/5.04 Sines and Cosines
	(B) apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.	Apply	Apply	Sem. 1 – Unit 5 - 5.07 The Pythagorean Theorem, Part 1 Sem. 1 – Unit 5 - 5.08 The Pythagorean Theorem, Part 2 Sem. 1 – Unit 5 - 5.10 Areas of Special Triangles and Regular Polygons, Part 1
(10) Two-dimensional and three- dimensional figures. The student uses the process skills to recognize characteristics and dimensional changes of two- and three- dimensional figures. The student is expected to:				



	(A) 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	Understand	Understand	Sem. 2 – Unit 1 - 1.03 Solid Shapes and Three-Dimensional Drawing, Part 2 Sem. 2 – Unit 1 – 1.03 Writing Assignment Sem. 2 – Unit 2 - 2.04 Surface Area and Volume of Prisms, Part 2 Sem. 2 – Unit 2 - 2.08 Surface Area and Volume of Cylinders, Part 2 Sem. 2 – Unit 2 - 2.11 Surface Area and Volume of Cones, Part 2 Sem. 2 – Unit 2 - 2.12 Surface Area and Volume of Spheres, Part 1
	(B) 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.	Apply	Apply	Sem. 2 – Unit 3 - 3.01 Dilations and Scale Factors, Part 1 Sem. 2 – Unit 3 - 3.02 Dilations and Scale Factors, Part 2 Sem. 2 – Unit 3 - 3.13 Area and Volume Ratios, Part 1 Sem. 2 – Unit 3 - 3.14 Area and Volume Ratios, Part 2
(11) Two-dimensional and three- dimensional figures. 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:				
	(A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure;	Apply	Apply	Sem. 1 – Unit 5 - 5.01 Perimeter and Area, Part 1 Sem. 1 – Unit 5 - 5.02 Perimeter and Area, Part 2

	<p>(B) 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;</p>	<p>Apply</p>	<p>Apply</p>	<p>Sem. 1 – Unit 5 - 5.02 Perimeter and Area, Part 2</p> <p>Sem. 1 – Unit 5 - 5.04 Areas of Triangles and Quadrilaterals, Part 2</p> <p>Sem. 1 – Unit 5 - 5.06 Circumferences and Areas of Circles, Part 2</p> <p>Sem. 1 – Unit 5 - 5.10 Areas of Special Triangles and Regular Polygons, Part 1</p>
	<p>(C) 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</p>	<p>Apply</p>	<p>Apply</p>	<p>Sem. 2 – Unit 2 - 2.01 Surface Area and Volume, Part 1</p> <p>Sem. 2 – Unit 2 - 2.03 Surface Area and Volume of Prisms, Part 1</p> <p>Sem. 2 – Unit 2 - 2.05 Surface Area and Volume of Pyramids, Part 1</p> <p>Sem. 2 – Unit 2 - 2.07 Surface Area and Volume of Cylinders, Part 1</p> <p>Sem. 2 – Unit 2 - 2.10 Surface Area and Volume of Cones, Part 1</p> <p>Sem. 2 – Unit 2 - 2.13 Surface Area and Volume of Spheres, Part 2</p>

	(D) 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.	Apply	Apply	<p>Sem. 2 – Unit 2 - 2.01 Surface Area and Volume, Part 1</p> <p>Sem. 2 – Unit 2 - 2.04 Surface Area and Volume of Prisms, Part 2</p> <p>Sem. 2 – Unit 2 - 2.07 Surface Area and Volume of Pyramids, Part 2</p> <p>Sem. 2 – Unit 2 - 2.08 Surface Area and Volume of Cylinders, Part 2</p> <p>Sem. 2 – Unit 2 - 2.11 Surface Area and Volume of Cones, Part 2</p> <p>Sem. 2 – Unit 2 - 2.12 Surface Area and Volume of Spheres, Part 1</p>
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(12) Circles. The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to:

	(A) apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems;	Apply	Apply	<p>Sem. 2 – Unit 4 - 4.02 Chords and Arcs, Part 2</p> <p>Sem. 2 – Unit 4 - 4.04/4.05 Tangents to Circles</p> <p>Sem. 2 – Unit 4 - 4.07 Inscribed Angles and Arcs, Part 2</p> <p>Sem. 2 – Unit 4 - 4.10 Angles Formed by Secants and Tangents, Part 2</p> <p>Sem. 2 – Unit 4 - 4.11 Segments of Tangents, Secants, and Chords, Part 1</p>
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	(B) apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems;	Apply	Apply	Sem. 2 – Unit 4 - 4.02 Chords and Arcs, Part 2
	(C) 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;	Apply	Apply	Sem. 1 – Unit 5 - 5.06 Circumferences and Areas of Circles, Part 2
	(D) 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	Understand	Understand	Sem. 2 – Unit 4 - 4.03 Basic Angles and Radian Measure
	(E) 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 $(h, k)$ , $(x - h)^2 + (y - k)^2 = r^2$ .	Apply	Apply	Sem. 2 – Unit 4 - 4.13 Circles in the Coordinate Plane, Part 1 Sem. 2 – Unit 4 - 4.14 Circles in the Coordinate Plane, Part 2
(13) Probability. 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:				
	(A) develop strategies to use permutations and combinations to solve contextual problems;	Create	Create	Sem. 1 – Unit 6 - 6.02 Permutations and Combinations
	(B) determine probabilities based on area to solve contextual problems;	Apply	Apply	Sem. 1 – Unit 6 - 6.02 Writing Assignment: Geometric Probability
	(C) identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;	Apply	Apply	Sem. 1 – Unit 6 - 6.01 Introduction to Probability
	(D) apply conditional probability in contextual problems; and	Apply	Apply	Sem. 1 – Unit 6 - 6.01 Introduction to Probability
	(E) apply independence in contextual problems.	Apply	Apply	Sem. 1 – Unit 6 - 6.01 Introduction to Probability