**Geometry - 1st Semester Study Guide**

* The exam will cover material from chapter 1 through chapter 4 in our textbook.
* The exam will be similar in make-up to the chapter tests/quizzes

(multiple choice, completion, short answer)

The following definitions, postulates, and theorems from chapters 1 – 4 are “fair game” for the exam.

Please study!

**Chapter 1**

Point, line, plane

Line segment

Collinear points

Coplanar points

Ray

Intersection

Coordinates

Distance

Congruent segments

Coordinate plane

Midpoint

Segment bisector

Midpoint formula

Distance formula

Angles – acute, obtuse, right, straight

Congruent angles

Angle bisector

Angle addition postulate

Complementary angles

Supplementary angles

Adjacent angles

Linear pair

Vertical angles

Polygon

Equilateral

Equiangular

Regular

**Chapter 2**

Conjecture

Inductive reasoning

Counterexample

Conditional statements

Converse, inverse, contrapositive statements

Negation of a statement

Bi-conditional statements

Deductive reasoning

Law of detachment

Law of syllogism

Point, line, and plane postulates

Theorems 2.1 & 2.2 (Congruence of segments & Congruence of Angles)

Theorem 2.3 – Right angle theorem

Theorems 2.4 & 2.5 (congruent supplements & congruent complements)

Linear pair postulate

**Chapter 3**

Parallel lines

Skew lines

Parallel planes

Transversal

Corresponding angles

Alternate interior angles

Alternate exterior angles

Consecutive interior angles

Parallel postulate

Perpendicular postulate

Corresponding angles postulate

Theorem 3.1 – alternate interior angles theorem

Theorem 3.2 – alternate exterior angles theorem

Theorem 3.3 – consecutive interior angles theorem

Transitive property of parallel lines

Slope

Slope of two parallel lines

Slope of two perpendicular lines

Slope-intercept & standard forms of equations

X-intercept

Y-intercept

Theorems 3.8 – 3.12

**Chapter 4**

Triangle

Key concept box p. 203

4.1 – Triangle Sum Theorem

Interior Angles

Exterior Angles

4.2 – Exterior Angles Theorem

Congruent figures

Corresponding parts

4.3 – Third Angles Theorem

4.4 – Congruence Properties

Rigid Motion

Key concept box p. 225

SSS Congruence Postulate\*

Leg of a right triangle

Hypotenuse

SAS Congruence Postulate\*

HL Congruence Theorem

ASA Congruence Postulate\*

AAS Congruence Theorem

Legs

Vertex Angle

Base

Base Angles

Theorems 4.7 & 4.8

Corollaries p. 265

**AREAS OF FOCUS**

**Please focus your attention towards the following concepts:**

**Chapter 1**

* **Midpoint Formula** – know how to find the midpoint of two given coordinates
* **Distance formula** - know how to find the distance between two given coordinates
* **Complementary, supplementary, and vertical angles** – know their definitions and how they are used algebraically.
* **Acute, obtuse, right, straight angles** – know their definitions and be able to classify them based on angle measurements given graphically or numerically

**Chapter 2**

* **If-then, converse, inverse, contrapositive** – know how to write a statement in each of these conditional statement forms when given an initial conditional statement
* **Reflexive, symmetric, transitive properties** – know what these properties are and how they are used in relation to segments, angles, equality
* **Two-column proofs** – be familiar with how a two-column proof is written and developed. Know how you must give a reason for each statement that you make

**Chapter 3**

* **Corresponding, alternate interior, alternate exterior, and consecutive interior angles** – know how to classify these angle types as well as know the algebraic properties of these types of angles (ex. Corresponding angles are equal to each other; consecutive interior angles add up to 180o)
* **Slope of a line** – know how to find the slope of a line given two points as a coordinates
* **Slope of parallel/perpendicular lines** – know how the slopes of two parallel lines and two perpendicular lines are related to each other
* **Slope-intercept form & standard form of equations** – know how to write both forms of equations given a slope and a point, or given two points

**Chapter 4**

* **Classifying Triangles by Sides and Angles**
  + *Sides – equilateral, isosceles, scalene*
  + *Angles – acute, equiangular, right, obtuse*
* **Proving Triangles Congruent**
  + *SSS – all three sides congruent*
  + *SAS – two sides and the included angle are congruent*
  + *HL – the hypotenuse and one of the legs are congruent (right triangles only)*
  + *ASA – two angles and the included side are congruent*
  + *AAS – two angles and a (non-included) side are congruent*