Midterm Topics

CHAPTER 1

Equidistant – the same distance from something
Point – exact location (0 dimensions)
line – string of points infinitely in opposite directions (1 dimension)
plane – flat surface of points (2 dimensions)
space – 3 dimensional all inclusive existance
segment — piece of a line with a set length
ray – piece of a line extending infinitely in only one direction.
Distance – the length of a segment drawn between two points
Coplanar – lying on the same plane
Collinear – lying on the same line
Intersection – the points shared by two geometric figures
Congruent – same size, same shape
midpoint of a segment – a point in the exact center of a segment, splitting the segment into 2 equally sized segments
bisector of a segment – a line, segment, ray, or plane, that contains the midpoint of a segment.
segment addition postulate – if B is between A and C, then AB +BC = AC
angle – a figure formed by two rays that share an endpoint – measure in degrees
vertex – the point on an angle where the sides meet
congruent angles – angles with the same measure
adjacent angles – coplanar angles that share a vertex and one side, but do not overlap.
bisector of an angle – a ray that splits an angle into 2 equally sized angles.
Postulates and theorems relating points, lines, and planes

CHAPTER 2

Conditional – a statement that gives a condition (hypothesis) and an outcome that is present if that condition is met (conclusion)
If-then statement – a conditional statement using the form If "hypothesis," then "conclusion"
Hypothesis – the condition of an if-then statement
Conclusion – the outcome of an if-then statement
Converse – statement found by switching the hypothesis and conclusion of a conditional statement
Inverse – statement found by negating the hypothesis and conclusion of a conditional statement
Contrapositive – statement found by taking both the inverse and converse of a conditional statement
Counterexample – an example that shows a statement to be false
Biconditional – a single statement using "if and only if" to combine a conditional and its converse
Properties from algebra: addition, subtraction, multiplication, division, substitution, reflexive, symmetric, transitive.

Midpoint theorem – when the midpoint is shown, each smaller segment formed is half of the whole original segment.
angle bisector theorem – when the angle bisector is drawn, one of the smaller angles formed is half of the original angle.
complementary angles – sum of 90 degrees
supplementary angles – sum of 180 degrees
vertical angles – formed by intersecting lines (congruent)
perpendicular lines – meet at right angles

CHAPTER 3

Parallel lines – coplanar lines that never intersect
skew lines – noncoplanar lines
parallel planes – planes that never intersect
Transversal – line that intersects two other lines at different points
Special angle pairs: Corresponding, Alternate Interior, Same-Side Interior
Proving lines parallel – several ways to do this
classifying triangles by side and angle measure – scalene, isosceles, equilateral & acute, right, obtuse
sum of **interior** angles of a triangle = **180**
exterior angle theorem – exterior angle equals sum of remote interior angles
regular polygon – all sides = and all angles = \
sum of int. angles of a polygon = 180(n-2)
sum of exterior angles of a polygon = 360
Deductive reasoning – logic/proof
Inductive reasoning – patterns/observation for conclusion

CHAPTER 4

Congruent figures – same size, same shape
Congruent Triangles – same size, same shape
CPCTC – Corresponding Parts of Congruent Triangles are Congruent
SSS, SAS, ASA, AAS, HL,
isosceles triangles – two congruent sides (legs) and two congruent angles (base angles)
base angles -- congruent
legs -- congruent
median – connects an angle vertex of triangle to midpoint of opposite side
altitude – connects on vertice of a triangle and runs perpendicular to the opposite side
perpendicular bisector – line that is perpendicular to a segment at its midpoint

CHAPTER 5

Quadrilateral – 4 sides, 360 degrees
Parallelogram – parallel/congruent opp sides, congruent opp angles, diagonals bisect each other

Rectangle – parallelogram with 90 degree angles/congruent diagonals

Rhombus – parallelogram with 4 congruent sides diagonals bisect opp angles and are perp to each other

Square – rectangle and rhombus

Trapezoid – exactly one pair of parallel sides

Isosceles trapezoid – trapezoid with congruent legs

Proving a quadrilateral is a parallelogram – 5 ways

Theorems involving parallel lines – several in section 5-3

CHAPTER 6

Triangle Inequality Theorem – Any two sides of a triangle will have a sum greater than the length of the third side

SSS Inequality/ SAS Inequality – inequalities for two triangles – based on given information…conclude that a side or angle of one triangle is greater than the corresponding angle or side in the other triangle.

Inequalities within one triangle – The bigger the side, the bigger the opposite angle and the bigger the angle the bigger the opposite side.