Cheat Sheet for Geometry Midterm
(only includes official postulates, theorems, corollaries and formulas)

points, lines, planes, intersections,

- Through any two points there is exactly one line.

- Through any three noncollinear points there is exactly one plane containing them.

- If two planes intersect, then they intersect in exactly one line.

- If two lines intersect, then they intersect in exactly one point.

linear pairs, supplements,
complements, vertical angles, right angles

- If two angles form a linear pair, then they are supplementary.

▪ The sum of the measures of the angles of a linear pair is 180.

- If two angles are supplementary to the same angle or to two congruent angles, then the two angles are congruent.

- If two angles are complementary to the same angle of to two congruent angles, then the two angles are congruent.

- All right angles are congruent.

- Vertical angles are congruent.

parallel lines, angles formed by parallel lines and transversals,
perpendicular lines

- If two parallel lines are cut by a transversal, then corresponding angles are congruent.

- If two parallel lines are cut by a transversal, then alternate interior angles are congruent.

- If two parallel lines are cut by a transversal, then alternate exterior angles are congruent.

- If two parallel lines are cut by a transversal, then same side interior angles are supplementary.

- If two lines are cut by a transversal so that corresponding angles are congruent, then the lines are parallel.

- If two lines are cut by a transversal so that alternate interior angles are congruent, then the lines are parallel.

(over)

- If two lines are cut by a transversal so that alternate exterior angles are congruent, then the lines are parallel.

- If two lines are cut by a transversal so that same side interior angles are supplementary, then the lines are parallel.

angles of triangles,
exterior angles, remote interior angles

- The sum of the measures of the interior angles of a triangle is 180.

- The acute angles of a right triangle are complementary.

- The measure of each angle of an equilateral triangle is 60.

- The measure of one exterior angle of a triangle is equal to the sum of the measures of its remote interior angles.

- If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

congruent triangles, isosceles triangles

- SAS Postulate

- ASA Postulate

- SSS Postulate

- AAS Theorem

- HL Theorem

- CPCTC

- If two sides of a triangle are congruent, then the angles opposite these sides are congruent.

- If two angles of a triangle are congruent, then the sides opposite these angles are congruent.

- If three sides of a triangle are congruent, then the three angles are also congruent.

- If three angles of a triangle are congruent, then the three sides are also congruent.

- If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.

- If a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment.

- If a point is on the bisector of an angle, then it is equidistant from the sides of the angle.

- If a point in the interior of an angle is equidistant from the sides of the angle, then it is on the bisector of the angle.

- The circumcenter of a triangle is equidistant from the vertices of the triangle.

- The incenter of a triangle is equidistant from the sides of the triangle.

- The centroid of a triangle is located 2/3 of the distance from each vertex to the midpoint of the opposite side.

- The midsegment of a triangles is parallel to the third side of the triangle and its length is half the length of the third side.

Formulas

- Area of a rectangle = lw or bh

- Area of a square = s^2

- Area of a triangle = $\dfrac{1}{2}$ bh

- Circumference of a circle = $d\pi$ or $2\pi r$

- Area of a circle = πr^2

- Midpoint Formula: The midpoint M pf $\overline{AB}$ with endpoints A(x_1, y_1) and B(x_2, y_2) is:

  $M(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2})$

- Distance Formula: In a coordinate plane, the distance between two points (x_1, y_1) and (x_2, y_2) is: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

- Slope Formula: m = $\dfrac{y_2 - y_1}{x_2 - x_1}$

- Slope-intercept form: y = mx + b

- Point-slope form: $y - y_1 = m(x - x_1)$