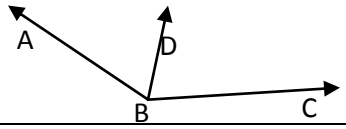
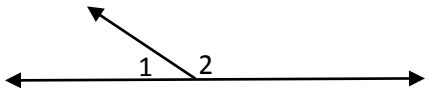
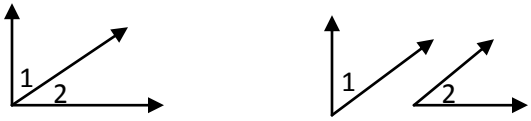
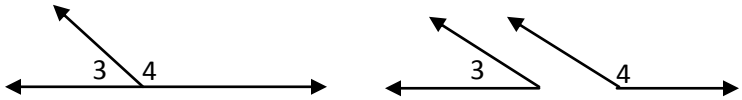
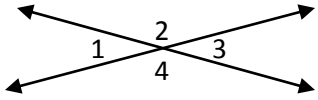
GEOMETRY STUDY GUIDE CHAPTER 1: FOUNDATIONS of GEOMETRY

Constructions that you should know for Exam:

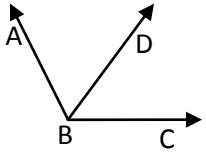
- Congruent Segment (determine congruency, translation, rotation, reflection)
- Perpendicular Bisector of a Segment (midpoint, line of reflection)
- Congruent Angle (determine congruency, rotation)
- Angle Bisector (construct additional angle measures)

Use Instructional Packet as well as **regentsprep.org** site and use their tutorial videos for review

Angle Pairs:

Adjacent Angles	• 2 $\measuredangle$'s in the same plane that share a common vertex & ray (and no overlap)  $\measuredangle ABD$ & $\measuredangle DBC$ are adjacent angles
Linear Pair	• A pair of adjacent $\measuredangle$'s whose non common sides are opposite rays OR • A pair of adjacent $\measuredangle$'s that form a straight angle (or line) • Linear pairs are supplementary 
Complementary Angles	• **2** $\measuredangle$'s whose measures have a sum of $90°$  $m\measuredangle 1 + m\measuredangle 2 = 90°$
Supplementary Angles	• 2 $\measuredangle$'s whose measures have a sum of $180°$  $m\measuredangle 3 + m\measuredangle 4 = 180°$
Vertical Angles	• a pair of non-adjacent $\cong$ $\measuredangle$'s formed by two intersecting lines  $\measuredangle 1$ & $\measuredangle 3$ are Vertical $\measuredangle$'s ; $\measuredangle 1 \cong \measuredangle 3$ $\measuredangle 2$ & $\measuredangle 4$ are Vertical $\measuredangle$'s ; $\measuredangle 2 \cong \measuredangle 4$

Postulates & Theorems

Segment Addition Post.	• the sum of adjacent segments = the length of entire segment (little + little = big)  AB + BC = AC
Angle Addition Post.	• the sum of adjacent angles = the measure of the entire angle (little + little = big)  $m\measuredangle ABD + m\measuredangle DBC = m\measuredangle ABC$
Linear Pair Theorem	• Linear Pair → Supplementary Angles
Congruent Complements	• Complementary angles of congruent angles are congruent (will be explored more)
Congruent Supplements	• Supplementary angles of congruent angles are congruent (will be explored more)
Halves	• Halves of congruent segments are all congruent • Halves of congruent angles are all congruent

Perimeter: sum of all exterior side lengths of a shape

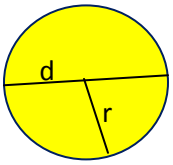
Circle Formulas:

C = πd or C = 2πr (circumference)

$A = \pi r^2$ (area)

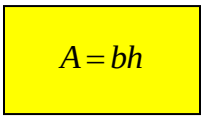
R = radius

D = diameter

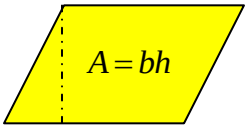


Area: Amount of space a shape takes

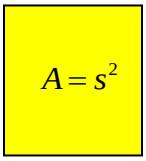
Rectangle



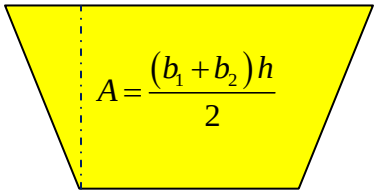
Parallelogram



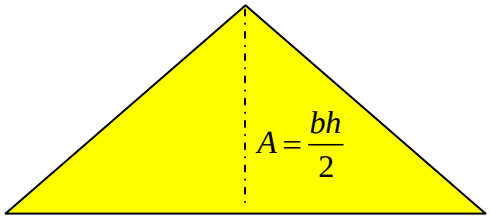
Square



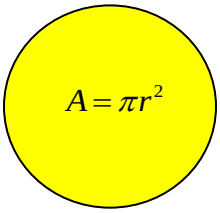
Trapezoid



Triangle



Circle



Formulas and Usage:

DISTANCE	MIDPOINT	SLOPE
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	$Midpt = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	$m = \frac{y_2 - y_1}{x_2 - x_1}$ **or** $m = \frac{\Delta y}{\Delta x}$
Used to find the length of a segment	**Used to find the midpoint of a segment**	**Use to determine the slant of a segment** **Parallel lines have = slopes** **Perpendicular lines have slopes that are negative/opposite reciprocals of each other**