

Geometry Review

**1. A. Undefined terms: (*primitive terms*)

point line plane curve

Only one line can be drawn that passes through two designated points. In your Geometry book this is stated as “*Two points determine a line.*” “*Exactly one line can be drawn through two points.*” This means that the symbol for a line should name two points (no more!).

Line segment: a part of a line with two specific endpoints. We often refer to a line segment as simply a segment.

The order of letters for a line or line segment is not important.

Ray: a part of a line with one specific endpoint, the other direction does not stop. In some geometry books these are referred to as “half-lines”. The order of letters to name a ray is important because the endpoint must be the first letter written.

Congruent (\cong) means same shape (similar \sim) and same size (=).

Opposite rays: two collinear rays with a common endpoint.

**1. B. *Coplanar*: on the same plane

Skew lines: lines in different planes that do not intersect

**1. C. *Angle*: two rays with a common endpoint. A second definition is that the angle is a region enclosed by two radii and an arc of a circle.

Initial side of an angle: on the xy-plane the ray which is the positive part of the x-axis

Terminal side of an angle: on an xy-plane the ray which is not the positive part of the x-axis

Coterminal: angles which have the same terminal side (although they may not have the same measure)

Vertex: the common endpoint of the rays which form an angle

Straight angle: an angle which measures 180°

Right angle: an angle which measures 90°

Perpendicular lines: lines which intersect to form right angles (\perp)

Acute angle: an angle which measures greater than 0° and less than 90°

Obtuse angle: an angle which measures greater than 90° and less than 180°

Supplementary angles (supplements): two angles which form a straight line or add up to 180°

Complementary angles (complements): two angles which form a right angle or add up to 90°

**1. D. The assumptions are the same as in the Geometry book.

**1. E. *Triangle:* three line segments that meet only at their endpoints. A 3-sided polygon.

Equiangular: all angles are equal in measure

Equilateral: all sides are equal in length

Isogonic triangle: a triangle with two angles equal in measure

Isosceles triangle: a triangle with two sides equal in length

Scalene triangle: a triangle with no sides and no angles equal in measure

Acute triangle: a triangle with all acute angles

Right triangle: a triangle with one right angle

Obtuse triangle: a triangle with one obtuse angle

**1. F. *Parallel lines:* coplanar lines that do not intersect

Transversal: a line which intersects two other lines at different points

Theorem: ***If two parallel lines are cut by a transversal then alternate interior angles are congruent.***

Theorem: ***If two parallel lines are cut by a transversal then alternate exterior angles are congruent.***

Theorem: ***If two parallel lines are cut by a transversal then corresponding angles are congruent.***

Theorem: ***If two parallel lines are cut by a transversal then same side interior angles are supplementary.***

Theorem: ***If two parallel lines are cut by a transversal then same side exterior angles are supplementary.***

Theorem: *If two lines are cut by a transversal so that a pair of alternate interior angles is congruent, then the lines are parallel.*

Theorem: *If two lines are cut by a transversal so that a pair of alternate exterior angles is congruent, then the lines are parallel.*

Theorem: *If two lines are cut by a transversal so that a pair of corresponding angles is congruent, then the lines are parallel.*

**1. G. *Altitude*: the line segment in a triangle from the vertex perpendicular to the opposite side (In the area formulas this is called the *height*.)

Theorem: *The area of a square is the length of the side squared.*

Theorem: *The area of a rectangle is the length times the width (or the base times the height).*

Theorem: *The area of a triangle is one-half the base times the height.*

Chord: a line segment with endpoints on a circle

Diameter: a chord which passes through the center of a circle

Radius: a line segment with one endpoint at the center of the circle and the other endpoint on the circle (A radius is one-half a diameter.)

Circumference: the distance around a circle

$$C = 2\pi(\text{radius}) = \pi(\text{diameter})$$

Theorem: *The area of a circle is π times the radius squared.*

Arc: a part of a circle

Sector: the part of the circle enclosed by two radii and an arc of a circle

Theorem: *The area of a sector of a circle is the fraction of the circle determined by dividing the measure of the central angle (or arc) by 360° times π times the radius squared.*

****1. H. Concept review problems are often thought provoking problems. The answers are always A, B, C, or D. The answer is A if choice A is greater. The answer is B if choice B is greater. The answer is C if they are equal. The answer is D if it cannot be determined (or there is insufficient information).**