Lines, Angles and Parallel lines

Line: A line is a collection of points which extend in both direction in a straight path is called line.

Line Segment: A part of a line is called line segment.

Ray: A ray is also a part of line which extend in one direction only.

Angles: When two rays having the same initial point they form an angle.

Types of Angles:

1.Supplementary Angles: If the sum of measure of two or more angle is 180 then they are called supplementary angles.

2.Complementary Angles: If the sum of two or more angles is 90 then they are said to be complementary angles.

Linear Pair of Angles: Two adjacent angles have their non common arms are two opposite rays and lie on a straight line is called linear pair.Sum of linear pair is 180

Angles at a point: If angles together make one complete turn then they are said to be angles at a point or complete angles.Sum of a complete angle is equal to 360.

Vertically opposite angles: If the arms of two angles have the same vertex and are opposite to each other they are known as vertically opposite angles.Vertically opposite angles are always equal.

Parallel Lines

Intersecting Lines: Two lines are said to be intersecting lines if they have a common point.The point at which the both lines intersect is called the point of intersection.

Parallel lines: Two lines are said to be parallel if they lie in the same plane and do not intersect each other,however far they are extended.

l is parallel to m and it is wriitten as l||m.

Transversal lines:A line which intersects two (or more) lines in a plane at different points is called a transversal.

Angles Formed when a transversal Cuts Two parallel lines:

1.Corresponding Angles:

The four pairs (1,5),(2,6),(3,7),(4,8) are called corresponding angles.

2.Alternate Angles

a)Alternate interior angles: The pairs 3,5 and 4,6 are called alternate interior angles.

b)Alternate exterior angles: The pairs 2,8 and 1,7 are called alternate exterior angles.

3.Co interior angles: The pairs 3,6 and 4,5 are called co-interior

Properties of Angles made by a transversal with two Parallel line

1.Each pair of corresponding angles are equal.

2.Each pair of alternate interior angles are equal.
3.Each pair of alternate exterior angles are equal.

4.The sum of the consecutive interior angles 180.

It follows that a pair of co-interior angles are supplementary.

Conditions for Parallel lines:

1)If two lines are cut by a transversal such that a pair of corresponding angles are equal,then the lines are parallel.

2)If two lines are cut by a transversal such that a pair of alternate interior angles are equal,then the two lines are parallel.

3)If two lines are cut by a transversal such that a pair of co-interior angles are supplementary,then the two lines are parallel