

UNIT 1 POSTULATES

Points, Lines, Planes, and Angles

Postulate 1 (**Ruler Postulate**):

1. The points on a line can be paired with the real numbers in such a way that any two points can have coordinates 0 and 1.
2. Once a coordinate system has been chosen in this way, the distance between any two points equals the absolute value of the difference of their coordinates.

Postulate 2 (**Segment Addition Postulate**):

If B is between A and C, then $AB + BC = AC$.

Postulate 3 (**Protractor Postulate**):

On AB in a given plane, choose any point O between A and B . Consider OA and OB and all the rays that can be drawn from O on one side of AB . These rays can be paired with the real numbers from 0 to 180 in such a way that: a. OA is paired with 0, and OB with 180. b. If OP is paired with x , and OQ with y , then $m\angle POQ = |x - y|$.

Postulate 4 (**Angle Addition Postulate**):

If point B lies in the interior of $\angle AOC$, then $m\angle AOB + m\angle BOC = m\angle AOC$. If $\angle AOC$ is a straight angle and B is any point not on AC , then $m\angle AOB + m\angle BOC = 180$.

Postulate 5:

A line contains at least two points; a plane contains at least three points not all in one line; space contains at least four points not all in one plane.

Postulate 6:

Through any two points there is exactly one line.

Postulate 7:

Through any three points there is at least one plane, and through any three noncollinear points there is exactly one plane.

Postulate 8:

If two points are in a plane, then the line that contains the points is in that plane.

Postulate 9:

If two planes intersect, then their intersection is a line.