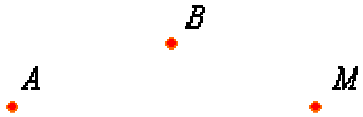
Basic Geometry Concepts

Some basic geometry concepts, words and notations that you would need to know are points, lines, line segments, midpoints, rays, planes and space.

Points

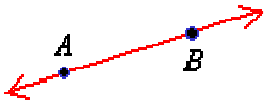
We may think of a point as a "dot" on a piece of paper or the pinpoint on a board. In geometry we usually identify this point with a number or letter. A point has no length, width, or height - it just specifies an exact location. It is zero-dimensional.

The following is a diagram of points *A*, *B*, and *M*:



Lines

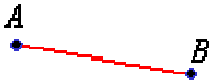
A line is one-dimensional. That is, a line has length, but no width or height. In geometry, a line extends forever in both directions. A line is uniquely determined by two points.



The line passing through the points *A* and *B* is denoted by $\overleftrightarrow{AB}$

Line segments

A **line segment** connects two endpoints. A line segment with two endpoints *A* and *B* is denoted by $\overline{AB}$.



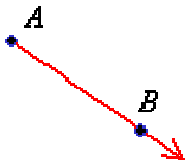
A line segment can also be drawn as part of a line.

Midpoint

The **midpoint** of a segment divides the segment into two segments of equal length. The diagram below shows the midpoint *M* of the line segment $\overline{AB}$. Since *M* is the midpoint, we know that the lengths *AM* = *MB*.

Rays

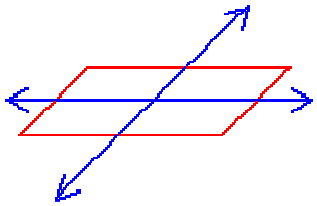
A **ray** starts from one endpoint and extends forever in one direction.



A ray starting from point *A* and passing through *B* is denoted by $\overrightarrow{AB}$

Planes

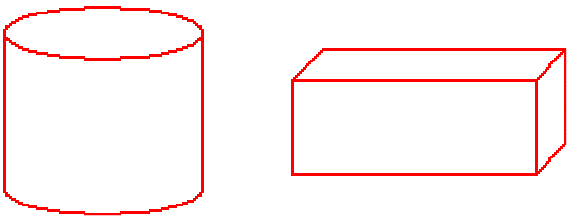
Planes are two-dimensional. A plane has length and width, but no height, and extends infinitely on all sides. Planes are thought of as flat surfaces, like a tabletop. A plane is made up of an infinite amount of lines. Two-dimensional figures are called plane figures.



A plane

Space

Space is the set of all points in the three dimensions - length, width and height. It is made up of an infinite number of planes. Figures in space are called solids.



Figures in space

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