

Geometry

A **definition** is a statement of the meaning of something (a term, a word, another statement).

In our real life it is very useful and convenient to agree about terms and concepts, to give them a definition, before starting using them just to be sure that everybody knows what they are talking about.

desk

noun

noun: **desk**; plural noun: **desks**

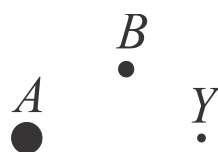
1. 1)a piece of furniture with a flat or sloped surface and typically with drawers, at which one can read, write, or do other work.
- 2)a counter in a hotel, bank, or airport at which a customer may check in or obtain information. "the reception desk"



In mathematics everything should be very well defined. Let's try to describe or make up a definition of a point, a line, a plane.

A Point

In geometry, a point is not a thing, but a place. It has no dimensions (actual size), no width, no thickness. A point is an exact position or location on a plane surface. A point can be very tiny or very large and it still represents a point. A point is usually named with a capital letter.



A Line

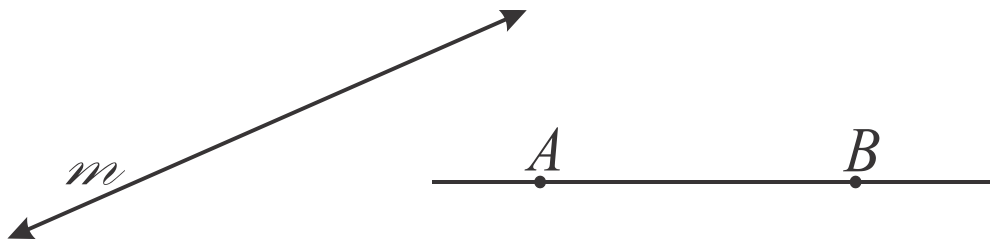
A line is "a row of closely spaced dots will look like a continuous line"

It has no beginning point or end point. Imagine it continuing indefinitely in both directions.

A line has no thickness.

A line is drawn as a straight line (unless it is indicated that the line is not straight) with two arrowheads (or without them) indicating that the line extends without end in both directions.

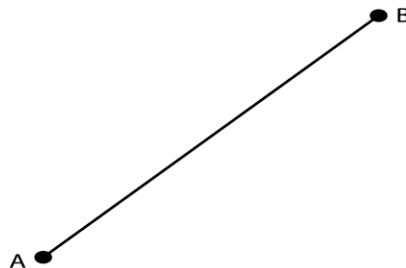
A line is named by a single lowercase letter (m), or by any two points on the line, \overleftrightarrow{AB} or AB



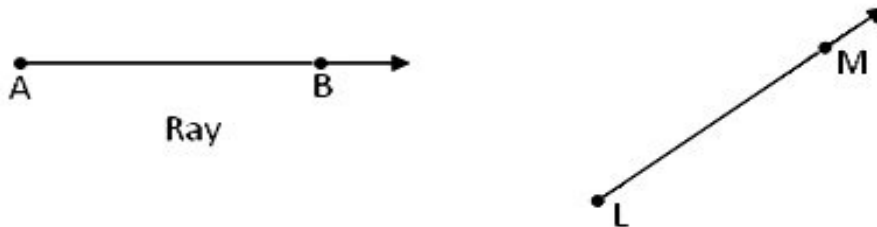
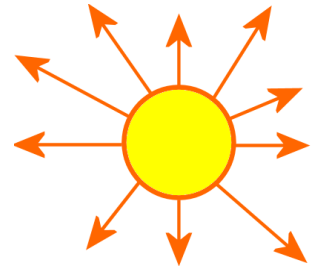
When two points are connected with a straight line, we get a **line segment**.

A **line segment** is also a part of a straight line between two chosen points.

These points are called endpoints. A segment is called by its endpoints- **Segment AB**

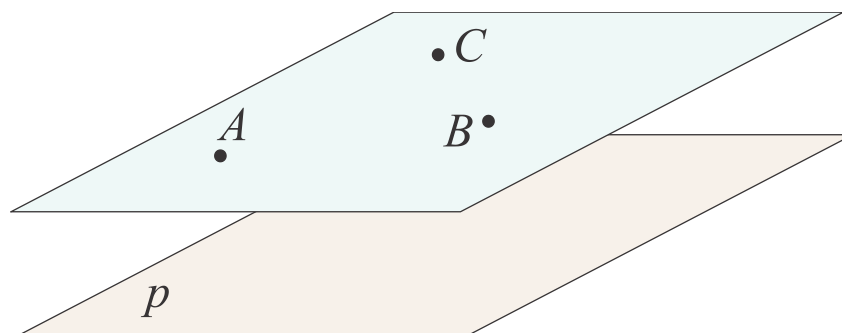


A **ray** is a part of a straight line consisting of a point (endpoint) and all points of the straight line at one side of an endpoint. A **ray** is named by endpoint and any other point-**Ray AB** or \overrightarrow{AB} (where A is an endpoint)

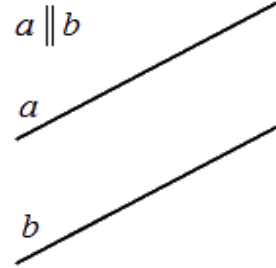


A Plane is a flat level or surface.

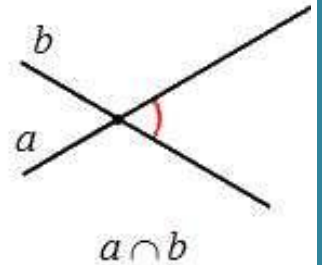
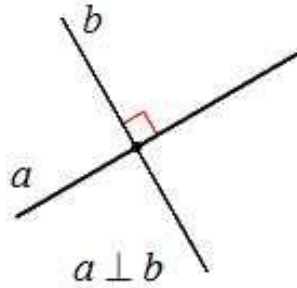
- A plane has no thickness but extends indefinitely in all directions.
- Planes are usually represented by parallelogram.
- Even though the diagram of a plane has edges, you must remember that the plane has no boundaries.
- A plane is named by a single letter (plane p) or by three non-collinear points (plane ABC).



Parallel lines are two or more lines in a plane that do not intersect or touch each other at any point.



Two straight lines can intersect (then they have one common point).



**Remember the differences
between the three:**

