

Geometry.

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

desk

noun

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

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.
 - o Music
a position in an orchestra at which two players share a music stand.
"an extra desk of first and second violins"
 - o a counter in a hotel, bank, or airport at which a customer may check in or obtain information.
"the reception desk"



In mathematics everything (mmm,,, almost everything) should be very well defined. In our real life, it is also 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. Now we move to geometry.

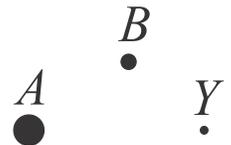
Can we give a definition to a point? Can we clearly define what a point is? What a line is? What a plane is?

Mathematicians decided do not define terms "point", "straight line", and "plane" and to rely upon intuitive understanding of these terms.

Point (an undefined term).

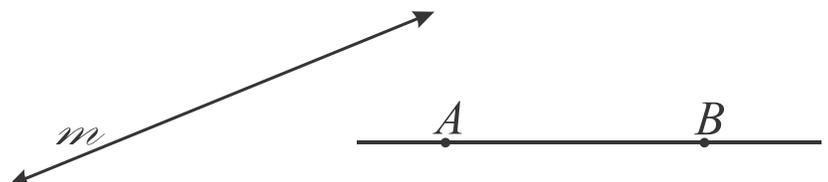
In geometry, a point has no dimension (actual size), point is an exact location in space.

Although we represent a point with a dot, the point has no length, width, or thickness. Our dot can be very tiny or very large and it still represents a point. A point is usually named with a capital letter.



Line (an undefined term).

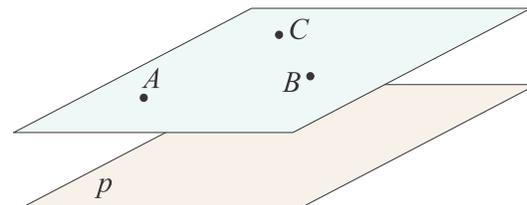
In geometry, a line has no thickness but its length extends in one dimension and goes on forever in both directions. Unless otherwise stated a line is drawn as a straight line with two arrowheads indicating that the line extends without end in both directions



(or without them). A line is named by a single lowercase letter, m for example, or by any two points on the line, \overleftrightarrow{AB} or AB .

Plane (an undefined term).

In geometry, a plane has no thickness but extends indefinitely in all directions. Planes are usually represented by a shape that looks like a 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).



A line segment is a part of a straight line between two chosen points. (A set of points of a straight line between two points.) These points are called endpoints.

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

Exercises:

1. Draw a segment 2 cm long, 5 cm long, a square with the side 4 cm. (use ruler, pencil).
2. Draw two line segments AB and CD in such way that their intersect
 - a. by a point
 - b. by a segment
 - c. don't intersect at all.
3. Using a ruler draw a straight line, put on it 3 points, B , A , and C so that 2 rays are formed, BC and BA .
4. Draw two rays AB and CD in such way that their intersect
 - d. by a point
 - e. by a segment
 - f. by a ray
 - g. don't intersect at all.