



## Introduction to Euclids geometry Ex 7.1 Q1

**Answer :**

The given problem requires definitions of various terms.

(i) Line segment:

A line segment  $AB$  can be defined as the part of the line with end points  $A$  and  $B$ , where  $A$  and  $B$  are the two points of the line.

It is denoted by  $\overline{AB}$  or  $\overline{BA}$

Let us take a line with two points  $A$  and  $B$



This is a line  $AB$

While,



This is a line segment  $AB$ .

(ii) Collinear points:

When three or more points lie on the same line; they are said to be collinear.

Example:

Let us take a line  $l$ .  $P, Q, R$  points lie on it.



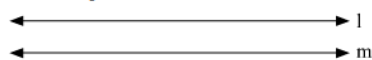
So,

Here,  $P, Q$  and  $R$  are **collinear points**.

(iii) Parallel lines:

Two or more lines are said to be parallel to each other if there is no point of intersection between them.

For Example:

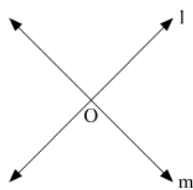


Since, there is no point of intersection between  $l$  and  $m$ , they are **parallel**.

(iv) Intersecting lines:

Two or more lines are said to be intersecting lines if they meet each other at a point or they have a common point.

For Example:

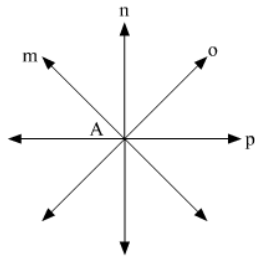


$l$  and  $m$  are the two lines both passing through point  $O$ . Hence, they are **intersecting lines**.

(v) Concurrent lines:

Two or more lines are said to be concurrent if they all pass through a common point or there exist a point common to all of them.

For Example:



$m$ ,  $n$ ,  $o$  and  $p$  are concurrent as they all have a common point  $O$ .

(vi) Ray:

A ray is defined as the part of the line with one end point such that it can be extended infinitely in the other direction.

It is represented by  $\overrightarrow{AB}$

For Example:



Here,  $\overrightarrow{AB}$  is a ray as it has one end point  $A$  and it can be extended indefinitely in other direction.

(vii) Half-line:

A half-line can be defined as a part of the line which has one end point and extends indefinitely in the other direction. It is different from ray as the end point is not included in the half-line.

For example,



When  $A$  is included in the part, then it is called a ray  $AB$ , but when  $A$  is not included then is called a half-line  $AB$ .

\*\*\*\*\* END \*\*\*\*\*