

1) Define the following terms.

(i) Line segment

(v) Concurrent lines

(ii) Collinear points

(vi) Ray

(iii) Parallel lines

(vii) Half-line

(iv) Intersecting lines

Solution

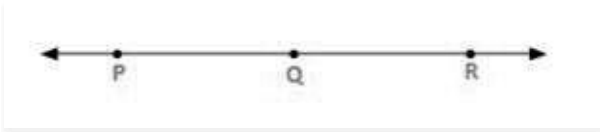
(i) Line-segment:

Give two points A and B on a line l . the connected part (segment) of the line with end points at A and B is called the line segment AB.



(ii) Collinear points:

Three or more points are said to be collinear if there is a line which contains all of them.



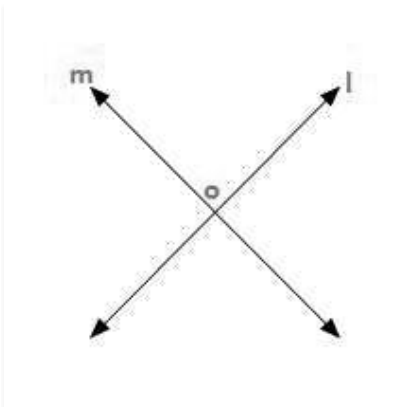
(iii) Parallel lines:

Two lines l and m in a plane are said to be parallel lines if they do not intersect each other.



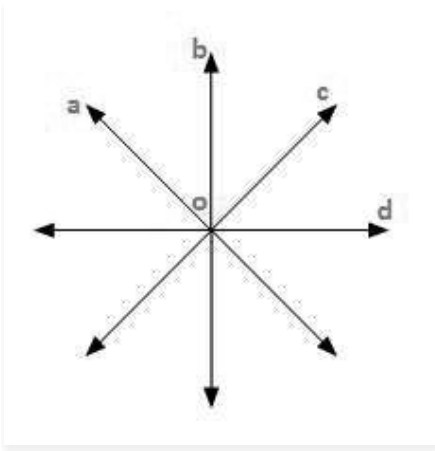
(iv) Intersecting lines:

Two lines are intersecting if they have a common point. The common point is called point of intersection.



(v) Concurrent lines:

Three or more lines are said to be concurrent if there is a point which lies on all of them.



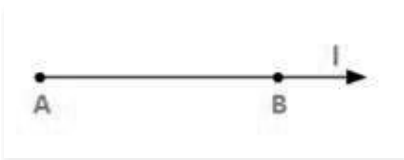
(vi) Ray:

A line in which one end point is fixed and the other part can be extended endlessly.



(vii) Half-line:

If A, B, C be the points on a line l , such that A lies between B and C, and we delete the point A from line l , the two parts of l that remain are each called half-line.



2) (i) *How many lines can pass through a given point?*

(ii) *In how many points can two distinct lines at the most intersect?*

Solution

(i) Infinitely many

(ii) One

3) (i) *Given two points P and Q. Find how many line segments do they determine.*

(ii) *Name the line segments determined by the three collinear points P, Q and R.*

Solution

(i) One

(ii) PQ, QR, PR

4) *Write the truth value (T/F) of each of the following statements:*

(i) *Two lines intersect in a point.*

(ii) *Two lines may intersect in two points*

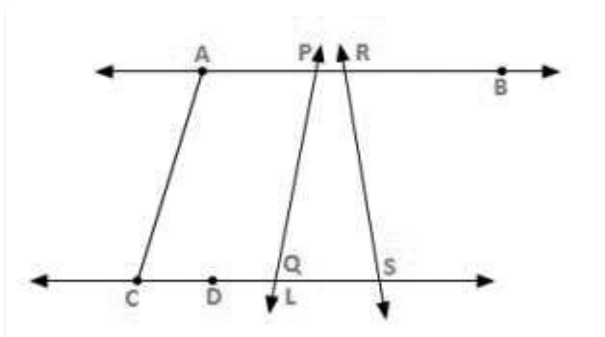
(iii) *A segment has no length.*

- (iv) Two distinct points always determine a line.
- (v) Every ray has a finite length.
- (vi) A ray has one end-point only.
- (vii) A segment has one end-point only.
- (viii) The ray AB is same as ray BA.
- (ix) Only a single line may pass through a given point.
- (x) Two lines are coincident if they have only one point in common

Solution

- (i) False
- (ii) False
- (iii) False
- (iv) True
- (v) False
- (vi) True
- (vii) False
- (viii) False
- (ix) False
- (x) False

5) In the below figure. Name the following:



Solution:

- (i) Five line segments AB, CD, AC, PQ. DS
- (ii) Five rays $\overrightarrow{PA}$, $\overrightarrow{RB}$, $\overrightarrow{DC}$, $\overrightarrow{QS}$, $\overrightarrow{DS}$
- (iii) Four collinear points. C, D, Q, S
- (iv) Two pairs of non-intersecting line segments AB and CD, AB and LS.

6) Fill in the blanks so as to make the following statements true:

- (i) Two distinct points in a plane determine a _____ line.
- (ii) Two distinct _____ in a plane cannot have more than one point in common.
- (iii) Given a line and a point, not on the line, there is one and only _____ line which passes through the given point and is _____ to the given line.
- (iv) A line separates a plane into _____ parts namely the _____ and the _____ itself.

Solution

(i) Unique

(ii) Lines

(iii) Perpendicular, perpendicular

(iv) Three, two half planes, line.