

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**

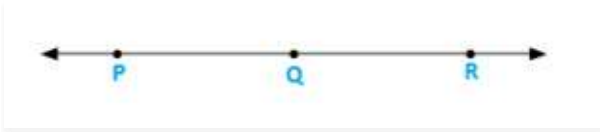
(i) Line-segment:

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.



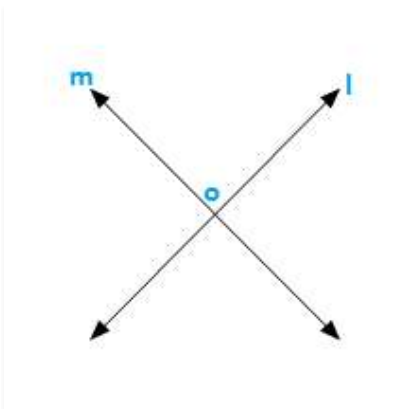
(iii) Parallel lines:

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



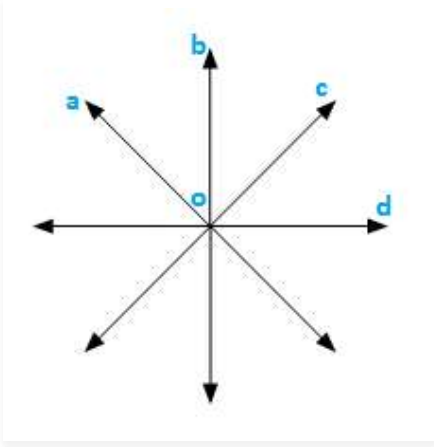
(iv) Intersecting lines:

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**

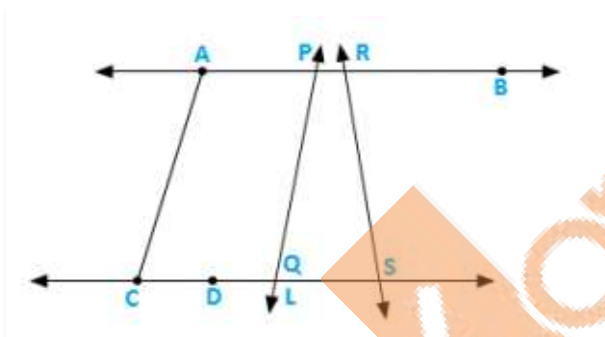
(iii) **A segment has no length.**

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

