

## Exercise – 7.1

1. Define the following terms:

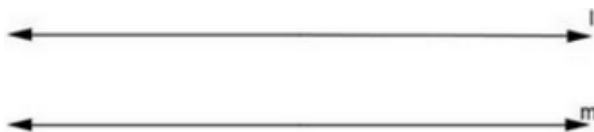
- |                         |                      |
|-------------------------|----------------------|
| (i) Line segment        | (v) Concurrent lines |
| (ii) Collinear points   | (vi) Ray             |
| (iii) Parallel lines    | (vii) Half-line      |
| (iv) Intersecting lines |                      |

**Sol:**

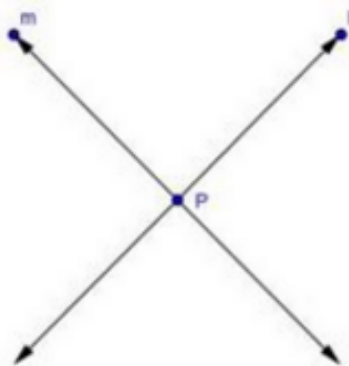
- (i) Line-segment- Give two points A and B on a line  $l$ , the connected part (segment) of the line with end points at A and B is called the line segment AB.



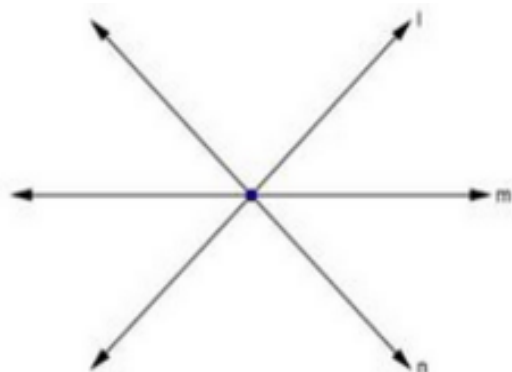
- (ii) Collinear points – Three or more points are said to be collinear if there is a line which contains all of them.
- (iii) Parallel lines – Two lines  $l$  and  $m$  in a plane are said to be parallel lines if they do not intersect each other.



- (iv) Intersecting lines – Two lines are intersecting if they have a common point. The common point is called point of intersection.



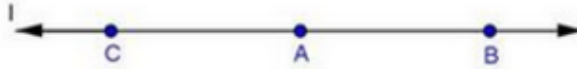
- (v) Concurrent lines – Three or more lines are said to be concurrent if there is a point which lies on all of them.



- (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?

**Sol:**

- (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.

**Sol:**

- (i) One  
 (ii) PQ, QR, PR

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

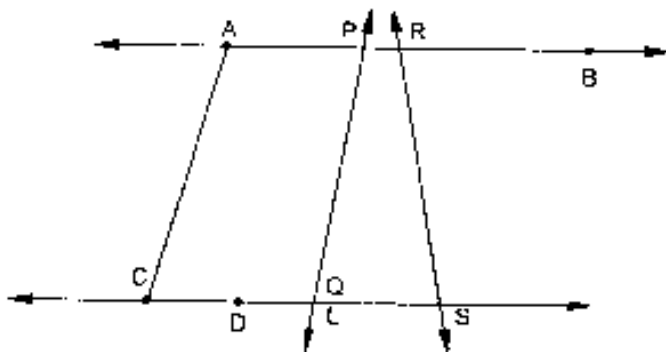
- (i) Two lines intersect in a point.  
 (ii) Two lines may intersect in two points.  
 (iii) A segment has no length.  
 (iv) Two distinct points always determine a line.  
 (v) Every ray has a finite length.  
 (vi) A ray has one end-point only.  
 (vii) A segment has one end-point only.  
 (viii) 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.

**Sol:**

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

- (viii) False
- (ix) False
- (x) False

5. In the below fig., name the following:



**Sol:**

- (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.

**Sol:**

- (i) Unique
- (ii) Lines
- (iii) Perpendicular, perpendicular
- (iv) Three, two half planes, line.