Define the following terms:

(i) Line segment

(ii) Collinear points

(iii) Parallel lines

(iv) Intersecting lines

(v) Concurrent lines

(vi) Ray

(vii) Half-line

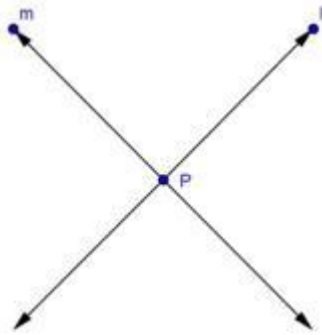
Solution 1

(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*.

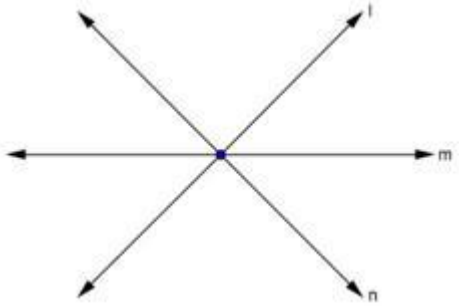
(ii) Collinear points – Three or more points are said to be collinear if there is a line which contains all of them.

(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.

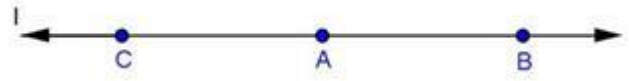


(v) Concurrent lines – Three or more lines are said to be concurrent if there is a point which lies on all of them.



(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.



Question 2(i)

How many lines can pass through a given point?

Solution 2(i)

Infinitely many

Question 2(ii)

In how many points can two distinct lines at the most intersect?

Solution 2(ii)

One

Question 3(i)

Given two points P and Q, find how many line segment do they determine.

Solution 3(i)

One

Question 3(ii)

Name the line segments determined by the three collinear points P, Q and R.

Solution 3(ii)

PQ, QR, PR

Question 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 4

(i) False

(ii) False

(iii) False

(iv) True

(v) False

(vi) True

(vii) False

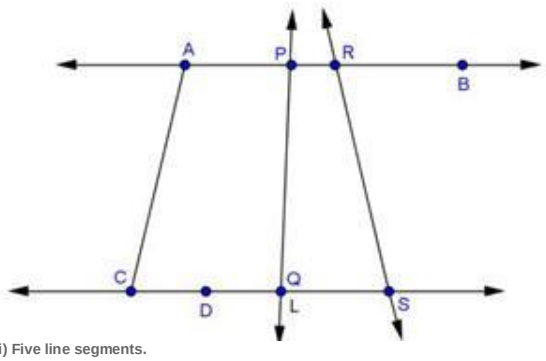
(viii) False

(ix) False

(x) False

Question 5

In fig., name the following:



(i) Five line segments.

(ii) Five rays.

(iii) Four collinear points.

(iv) Two pairs of non-intersecting line segments.

Solution 5

(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

Question 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 6

(i) unique

(ii) lines

(iii) perpendicular, perpendicular

(iv) three, two half planes, line.