



# line Segment Ray and Line

## Ex 11A

Q1

**Answer :**

(i) The line segments are:

$\overline{YX}$

*This is because it has two end points Y and X.*

$\overline{YZ}$

*This is because it has two end points Y and Z.*

(ii)

$\overline{AD}$

*This is because it has two end points A and D.*

$\overline{AB}$

*This is because it has two end points A and B.*

$\overline{AC}$

*This is because it has two end points A and C.*

$\overline{AE}$

*This is because it has two end points A and E.*

$\overline{DB}$

*This is because it has two end points B and D.*

$\overline{BC}$

*This is because it has two end points B and C.*

$\overline{CE}$

*This is because it has two end points C and E.*





(iii)

 $\overline{PS}$ *This is because it has two end points P and S.* $\overline{PQ}$ *This is because it has two end points P and Q.* $\overline{QR}$ *This is because it has two end points Q and R.* $\overline{RS}$ *This is because it has two end points R and S.* $\overline{PR}$ *This is because it has two end points P and R.* $\overline{QS}$ *This is because it has two end points Q and S.*

Q2

**Answer :**(i) Line segment is  $\overline{AB}$ . *This is because it has two end points A and B.*

Rays are:

 $\overrightarrow{AC}$ *This is because it has only one end point A.* $\overrightarrow{BD}$ *This is because it has only one end point B.*

(ii) Line segments are:

 $\overline{EP}$ *This is because it has two end points E and P.* $\overline{EG}$ *This is because it has two end points E and G.* $\overline{GP}$ *This is because it has two end points G and P.*

Rays are:

 $\overrightarrow{EF}$ *This is because it has only one end point, i.e. E.* $\overrightarrow{GH}$ *This is because it has only one end point, i.e. G.* $\overrightarrow{PQ}$ *This is because it has only one end point, i.e. P.*

(iii) Line segments are:

 $\overline{OL}$ *This is because it has two end points O and L.* $\overline{OP}$ *This is because it has two end points O and P.*

Rays are:

 $\overrightarrow{LM}$ *This is because it has only one end point, i.e. L.* $\overrightarrow{PQ}$ *This is because it has only one end point, i.e. P.*

Q3

**Answer :**

(i)

 $\overline{PR}$ *This is because it has two end points P and R.* $\overline{QS}$ *This is because it has two end points Q and S.* $\overline{PQ}$ *This is because it has two end points P and Q.* $\overline{RS}$ *This is because it has two end points R and S.*

(ii)  
 $\overrightarrow{PA}$ *This is because it has only one end point, i.e. P.* $\overrightarrow{RB}$ *This is because it has only one end point, i.e. R.* $\overrightarrow{QC}$ *This is because it has only one end point, i.e. Q.* $\overrightarrow{SD}$ *This is because it has only one end point, i.e. S.*

(iii)

 *$\overline{PR}$  and  $\overline{QS}$  are the two non – intersecting line segments as they do not have any point in common.*

Q4

**Answer :**COLLINEAR POINTS :

Three or more points in a plane are said to be collinear if they all lie in the same line. This line is called the line of collinearity for the given points.

(i) We can draw only one line passing through three collinear points.

(ii) 3 Line segments are:

 $\overline{AB}$ *This is because it has two end points A and B.* $\overline{BC}$ *This is because it has two end points B and C.* $\overline{AC}$ *This is because it has two end points A and C.*

Q5

**Answer :**

(i)

 $\overrightarrow{PS}$  and  $\overleftarrow{AB}$  intersecting at S. $\overleftarrow{CD}$  and  $\overrightarrow{RS}$  intersecting at R. $\overrightarrow{PS}$  and  $\overleftarrow{CD}$  intersecting at P. $\overleftarrow{AB}$  and  $\overrightarrow{RS}$  intersecting at S.

(ii) A, Q, S and B are four collinear points as they all lie on the same line  $\overleftarrow{AB}$ .

(iii) A, C and B are non-collinear points as they do not lie on the same line.

(iv)

 $\overleftarrow{PS}$ ,  $\overleftarrow{RS}$  and  $\overleftarrow{AB}$  are three concurrent lines passing through the same point S.

(v)

 $\overleftarrow{PS}$ ,  $\overleftarrow{PQ}$  and  $\overleftarrow{CD}$  have common point of intersection P.

Q6

**Answer :**Taking points A and B, we can draw only one line  $\overleftarrow{AB}$ .Taking points B and C, we can draw only one line  $\overleftarrow{BC}$ .Taking points A and C, we can draw only one line  $\overleftarrow{AC}$ .

We can draw only three lines through these non-collinear points A, B and C.

Q7

**Answer :**

(i) There are 6 line segments. These are:

 $\overline{AB}$  (with end points A and B) $\overline{AC}$  (with end points A and C) $\overline{AD}$  (with end points A and D) $\overline{BC}$  (with end points B and C) $\overline{BD}$  (with end points B and D) $\overline{CD}$  (with end points C and D)

(ii) There are 10 line segments. These are:

 $\overline{AB}$  (with end points A and B) $\overline{BC}$  (with end points B and C) $\overline{CD}$  (with end points C and D) $\overline{AD}$  (with end points A and D) $\overline{AC}$  (with end points A and C) $\overline{BD}$  (with end points B and D) $\overline{AO}$  (with end points A and O) $\overline{CO}$  (with end points C and O) $\overline{BO}$  (with end points B and O) $\overline{DO}$  (with end points D and O)

(iii) There are 6 line segments. They are:

 $\overline{AB}, \overline{AF}, \overline{FB},$  $\overline{EC}, \overline{ED}, \overline{DC}$ 

(iv) There are 12 line segments. They are:

 $\overline{AB}, \overline{AD}, \overline{AE}$  $\overline{BC}, \overline{BF}$  $\overline{CG}, \overline{CD}$  $\overline{HG}, \overline{HE}, \overline{DH}$  $\overline{EF}, \overline{GF}$ 

Q8

**Answer :**

(i) False

M is outside ray NQ.

(ii) True

L is placed between M and P.

(iii) True

Ray MQ is extended endlessly from M to Q and ray NQ is extended endlessly from N to Q.

(iv) True

(v) True

 $\overrightarrow{LP}$  is extended endlessly from L to P. $\overrightarrow{LQ}$  is extended endlessly from L to Q.

Q9

**Answer :**

(i) False

A point does not have any length, breadth or thickness.

(ii) False

A line segment has a definite length.

(iii) False

A ray has no definite length.

(iv) False

Ray AB has initial point A and is extended endlessly towards B, while ray BA has initial point B and is extended endlessly towards A.

(v) True

This is because both the line segments have definite length with end points A and B.

(vi) True

This is because it neither has a definite length nor any end point.

(vii) True

Only one line segment can pass through the two given points.

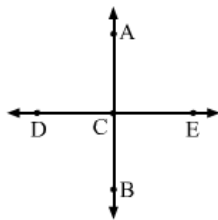
(viii) True

(ix) False

Two intersecting planes intersect at a line.

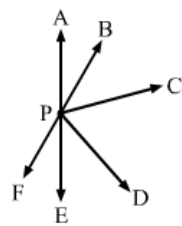
(x) False

Different set of collinear points need not be collinear.



(xi) False

With point P, endless rays (like PA, PB, PC, PD, PE, PF) can be drawn.



(xii) True

Two points define one unique line.

(xiii) True

Q10

**Answer :**

(i) definite

(ii) one

(iii) no

(iv) definite

(v) cannot



## line Segment Ray and Line

### Ex 11B

Q1

**Answer :**

(c) A line does not have any end point. It is a line segment that is extended endlessly on both sides.

Q2

**Answer :**

(b) A ray has one end point, which is called the initial point. It is extended endlessly towards the other direction.

Q3

**Answer :**

(a) A line segment has two end points and a definite length that can be measured.

Q4

**Answer :**

(b) A line segment has a definite length that can be measured by a ruler and, therefore, it can be drawn on a paper.

Q5

**Answer :**

(b) A line segment has a definite length that can be measured by a ruler. So, it can be drawn on a paper.

Q6

**Answer :**

(d) Unlimited number of lines can be drawn.

Q7

**Answer :**

(a) Only one line can be drawn that passes through two given points.

Q8

**Answer :**

(c) Two intersecting planes intersect in a line.

Q9

**Answer :**

(a) Two lines intersect at a point.

Q10

**Answer :**

(a) exactly one line segment

Two points in a plane determine exactly one line segment with those two points as its end points.

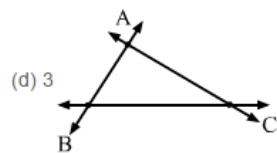
Q11

**Answer :**

(d) 0

Three lines will not necessarily intersect in a plane. Thus, the minimum point of intersection will be 0.

Q12

**Answer :**

The maximum number of points of intersection of three lines that intersect in a plane are three.

Q13

**Answer :**

(c) Every line segment has a definite length.

Every line segment has a definite length, which can be measured using a ruler.

Q14

**Answer :**

(b) Ray  $\overrightarrow{AB}$  is same as ray  $\overrightarrow{BA}$

This is because the initial points in these rays are A and B, respectively, and are extended endlessly towards B and A, respectively.

Q15

**Answer :**

(c) An unlimited number of rays can be drawn with a given point as the initial point. For example:

