RS Aggrawal Solutions for Class 6 Maths Chapter 11 Line Segment, Ray And Line

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 an Z.$\overline{YX}$ This is because it has two end points Y and X.$\overline{YZ}$ This is because it has two end points Y an 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.$\overline{AD}$ 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.$\overline{PS}$ 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.

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ANSWER:

(i) Line segment
is $\overline{AB}$. This is because it has two end points A and B.$\overline{AB}$. 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.→AC This is because it has only one end point A.→BD This is because it h

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as only one end point B.

(ii) Line segments are:
EP¯¯¯¯¯ This is because it has two end points Eand P.EG¯¯¯¯¯ This is because it ha s two end points E and G.GP¯¯¯¯¯ This is because it has two end points G and P.EP¯ This is because it has two end points Eand P.EG¯ This is because it has two end points E and G.GP¯ This is because it has two end points G and P.

Rays are:
EF−→− This is because it has only one end point, i.e. E.GH−→− This is because it ha s only one end point, i.e. G.PQ−→− This is because it has only one end point, i.e. P.E F→ This is because it has only one end point, i.e. E.GH→ This is because it has only one e nd point, i.e. G.PQ→ This is because it has only one end point, i.e. P.

(iii) Line segments are:
OL¯¯¯¯¯ This is because it has two end points O and L.OP¯¯¯¯¯ This is because it ha s two end points O and P.OL¯ This is because it has two end points O and L.OP¯ This is b ecause it has two end points O and P.

Rays are:
LM−→− This is because it has only one end point, i.e. L.PQ−→− This is because it h as only one end point, i.e. P.LM→ This is because it has only one end point, i.e. L.PQ→ T his is because it has only one end point, i.e. P.

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ANSWER:

(i)
PR¯¯¯¯¯ This is because it has two end points P and R.QS¯¯¯¯¯ This is because it ha s two end points Q and S.PQ¯¯¯¯¯ This is because it has two end points P and Q.RS¯ ¯¯¯¯ This is because it has two end points R and S.PR¯ This is because it has two end p oints P and R.QS¯ This is because it has two end points Q and S.PQ¯ This is because it ha s two end points P and Q.RS¯ This is because it has two end points R and S.

(ii)
PA−→− This is because it has only one end point, i.e. P.RB−→− This is because it ha

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s only one end point, i.e. R.QC−→− This is because it has only one end point, i.e. Q.S D−→− This is because it has only one end point, i.e. S.PA→ This is because it has only one end point, i.e. P.RB→ This is because it has only one end point, i.e. R.QC→ This is bec ause it has only one end point, i.e. Q.SD→ This is because it has only one end point, i.e. S.

(iii)
PR ¯¯¯¯¯¯and QS¯¯¯¯¯¯ are the two non−intersecting line segments as they do not ha ve any point in common.PR ¯and QS¯ are the two non-
intersecting line segments as they do not have any point in common.

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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:
AB¯¯¯¯¯¯ This is because it has two end points A and B.BC¯¯¯¯¯¯ This is because it h as two end points B and C.AC¯¯¯¯¯¯ This is because it has two end points A and C.AB ¯ This is because it has two end points A and B.BC¯ This is because it has two end points B and C.AC¯ This is because it has two end points A and C.

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ANSWER:

(i)
PS←→ and AB ←→− intersecting at S.CD←→and RS←→ intersecting at R.PS← → and CD←→ intersecting at P.AB←→ and RS←→ intersecting at S.PS↔ and AB ↔ intersecting at S.CD↔and RS↔ intersecting at R.PS↔ and CD↔ intersecting at P.AB↔ and RS↔ intersecting at S.

(ii) A, Q, S and B are four collinear points as they all lie on the same line AB ←→−AB ↔.

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

(iv)

PS←→ , RS←→ and AB←→ are three concurrent lines passing through the same po

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int SPS↔ , RS↔ and AB↔ are three concurrent lines passing through the same point S.

(v)

PS←→ , PQ←→ and CD←→ have common point of intersection PPS↔ , PQ↔ and CD↔ have common point of intersection P.

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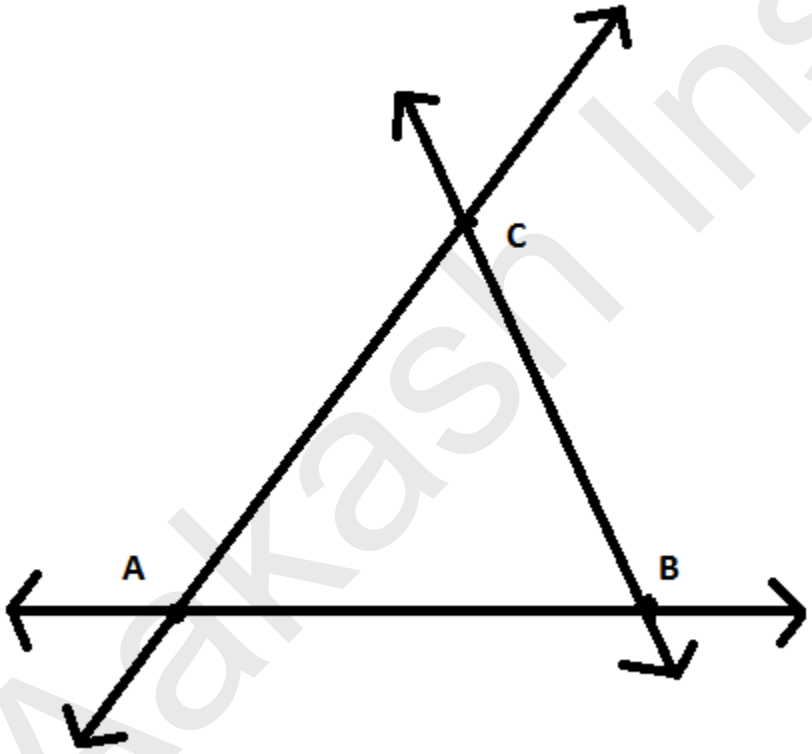
ANSWER:

Taking points A and B, we can draw only one line AB ←→−AB ↔.
Taking points B and C, we can draw only one line BC←→ BC↔ .
Taking points A and C, we can draw only one line AC ←→−AC ↔.
We can draw only three lines through these non-collinear points A ,B and C.



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ANSWER:

(i) There are 6 line segments. These are:
AB¯¯¯¯¯ (with end points A and B)AC¯¯¯¯¯ (with end points A and C)AD¯¯¯¯¯ (wi

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

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

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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.

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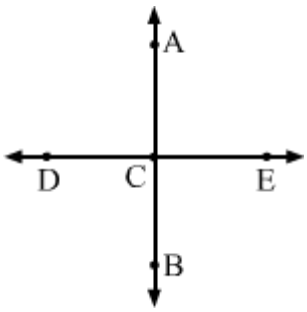
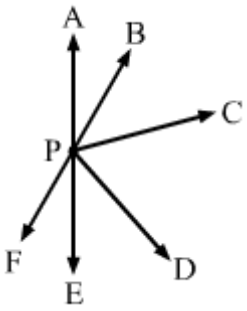


(xi) False

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

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ANSWER:

(i) definite
(ii) one
(iii) no
(iv) definite
(v) cannot

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ANSWER:

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

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ANSWER:

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

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ANSWER:

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

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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.

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ANSWER:

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

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ANSWER:

(d) Unlimited number of lines can be drawn.

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ANSWER:

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

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ANSWER:

(c) Two intersecting planes intersect in a line.

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ANSWER:

(a) Two lines intersect at a point.

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ANSWER:

(a) exactly one line segment

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

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ANSWER:

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

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ANSWER:



(d) 3

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

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(c) Every line segment has a definite length.

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

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ANSWER:

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

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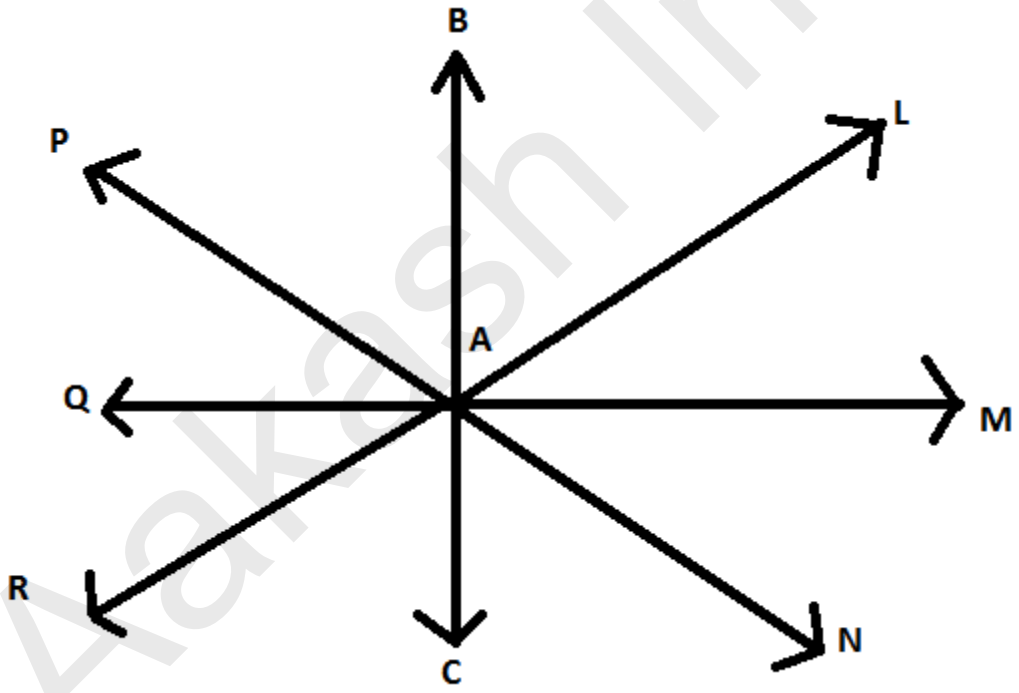
ANSWER:

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



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