

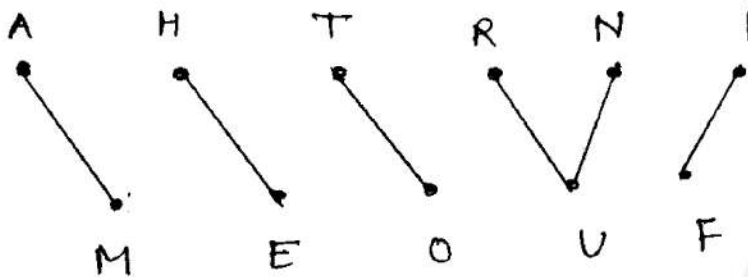
Exercise 10.2

Q.1 In fig. 10.32, points are given in two rows. Join the points AM, HE, TO, RN, IF. How many line segments are formed?

A H T R N I

M E O U F

Solution



Total, six line segments are formed.

Q.2 In fig 10.33, name:

(i) Five line segments (ii) Five rays

(iii) Non intersecting line segments.

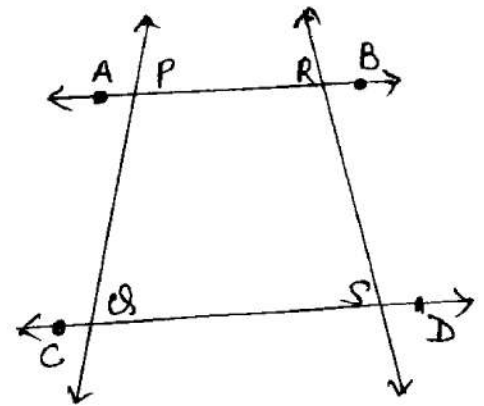
Solution (i) Five line segments are:

PQ, QS, SR, PR and BR.

(ii) Five rays are:

$\vec{PQ}$, $\vec{SP}$, $\vec{RB}$, $\vec{PA}$, $\vec{PB}$

(iii) Non intersecting line segments are: PR and QS



Q.3 In each of the following cases, state whether you can draw line segments on the given surfaces:

- (i) The face of a cuboid (ii) The Surface of an egg or apple
- (iii) The curved surface of a cylinder
- (iv) The curved surface of a cone
- (v) The base of a cone

Solution: (i) Yes (ii) No (iii) No (iv) No

(v) Yes.

Q.4 Mark the following points on a sheet of paper.

Tell how many line segments can be obtained in each case:

- (i) Two points A, B
- (ii) Three non collinear points A, B, C.
- (iii) Four points such that no three of them belong to the same line
- (iv) Any five points so that no three of them are collinear

Solution: As, we know that, If there are n points in a plane such that no three of them are collinear, then the number of line segments obtained = $\frac{n(n-1)}{2}$.

Solution: (i) Two points A, B (here $n=2$)

$$\therefore \text{No. of line segments} = \frac{n(n-1)}{2} = \frac{2(2-1)}{2} \\ = \frac{2 \times 1}{2} = 1$$

here, one line can be drawn.

(ii) here, $n=3$,

$$\text{no. of line segments} = \frac{3(3-1)}{2} = \frac{3 \times 2}{2} \\ = 3 \text{ line segments}$$

(iii) here, $n=4$

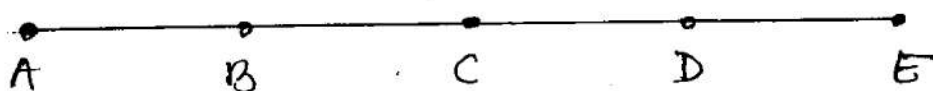
$$\text{No. of line segments} = \frac{4(4-1)}{2} = \frac{4 \times 3}{2} \\ = 6 \text{ line segments.}$$

(iv) here, $n=5$,

$$\therefore \text{No. of line segments} = \frac{5(5-1)}{2} = \frac{5 \times 4}{2} \\ = 10 \text{ line segments}$$

Q.5

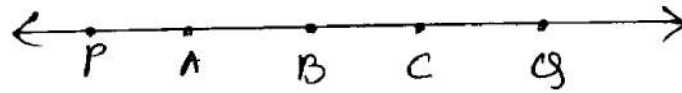
Count the number of line segments in fig 10.34.



Solution: here total line segments are 10.

AB, BC, CD, DE, AC, BD, CE, AD, BE, AE

Q6 In fig 10.35, name all rays with initial points as A, B and C respectively.



(i) Is ray $\overrightarrow{AB}$ different from ray $\overrightarrow{AC}$

(ii) Is ray $\overrightarrow{BA}$ different from ray $\overrightarrow{CA}$

(iii) Is ray $\overrightarrow{CP}$ different from ray $\overrightarrow{CQ}$

Solution: (i) No, as rays $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are originating from same point.

(ii) Yes, as rays $\overrightarrow{BA}$ and $\overrightarrow{CA}$ are originating from different end points.

(iii) Yes, as rays $\overrightarrow{CP}$ and $\overrightarrow{CQ}$ originating from same end point.

Q7 Give three examples of line segments from your environment.

Solution: (i) The edges of match box

(ii) The edges of paper sheet

(iii) The edges of ruler.