Exercise 18.2

Q1 Mark two points, A and B on a piece of paper and join them. Measure this length. For each of the following draw a line segment CD that is -

(i) equal to the segment AB (ii) twice AB

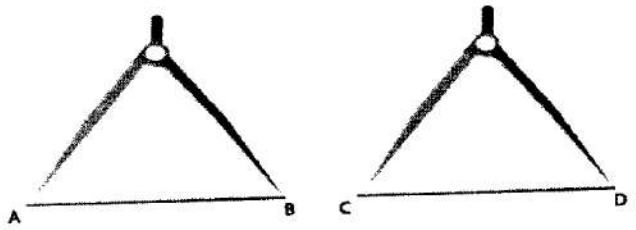
(iii) three times AB (iv) half AB

(v) Collinear with AB and is equal to

Solution Mark any two points A and B on the paper.

A B

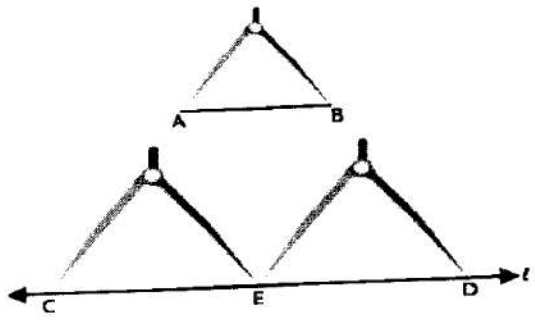
(i) In order to construct the line segment CD equals to AB, take a divider and open it so that the end point of one of its arm is at A and other is at B. Now lift the divider and place the end points of both hands on the paper.



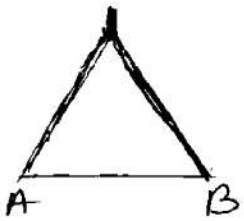
(ii) Lift the divider and place one end point at C and the other end point on the line l and mark is at E. Again lift the divider and place one end point at E and other end point on the line l, Mark it D.

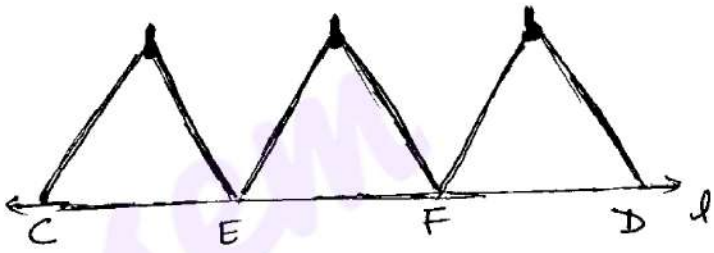
docs.aglasem.com
aglasem.com

The Learning App



(iii) In order to construct the line segment three times A.



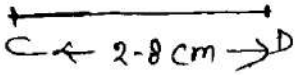


(iv) In order to construct a line segment that is half AB. Construct a line l and mark point C on it.

Measure AB = 5·6 cm.

So, half of AB = $\frac{5.6}{2}$ = 2·8 cm

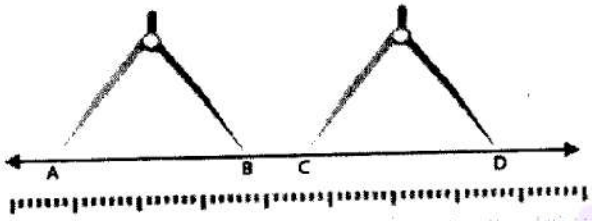
Take a divider and open it such that one end and arm is at 0 and the other arm is at 2·8 cm.



docs.aglasem.com

aglasem.com

(v) In order to construct a line segment CD collinear with AB is equal to it. use a ruler along AB and draw the line extended to AB. Take a divider and open it such that both of its end points are on points A and B. Lift the divider and place its end points of both of its arms on the extended line of AB and mark them as points C and D.



Q.2 The end point P of a line segment PQ is against 4 cm mark and the end point Q is against the mark indicating 14.8 cm on a ruler. what is the length of the segment PQ.?

Solution:



From the diagram, we know that, $OP = 4$ cm, $OQ = 14.8$ cm, it can be written as

$$PQ = OQ - OP = (14.8 - 4)\text{ cm} = 10.8\text{ cm}.$$

docs.aglasem.com
aglasem.com

Q3 Draw a line segment CD. Produce it to CE such that $CE = 3CD$.

Solution: Draw a line l and take two points C and D on it. Now take a divider and open it such that its ends of both arms at the points C and D.

Now left the divider and open its one end at D and the other end on the line l opposite to C and mark it as point A.

Again place one end at A and other point opposite to C and mark it as point E.

Now, $CD = DE = AE$

$\Rightarrow CE = CD + DE + AE$

$= CD + CD + CD$

$= 3CD$



Q4 If AB = 7.5 cm and CD = 2.5 cm, construct a segment whose length is equal to

(i) AB − CD (ii) 2AB (iii) 3CD

(iv) AB + CD (v) 2AB + 3CD (vi)

docs.aglasem.com

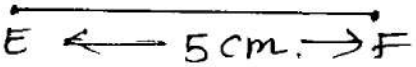
aglasem.com

Solution : $\because$ AB = 7.5 cm, CD = 2.5 cm.

(i) $AB - CD = 7.5\ cm - 2.5\ cm$

$= 5\ cm.$

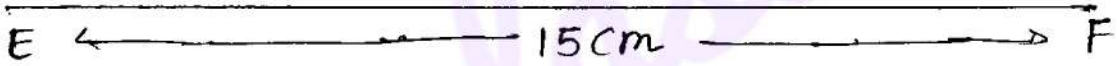
Draw a line EF = 5 cm.



(ii) $2AB = 2 \times 7.5\ cm$

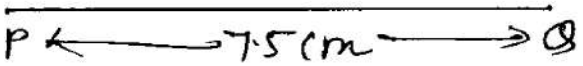
$= 15\ cm.$

Draw a line of 15 cm using ruler.



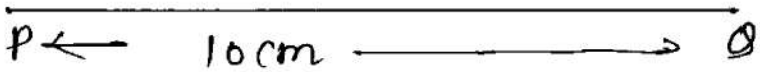
(iii) $3CD = 3 \times 2.5\ cm$

$= 7.5\ cm.$



(iv) $AB + CD = 7.5 + 2.5$

$= 10\ cm$



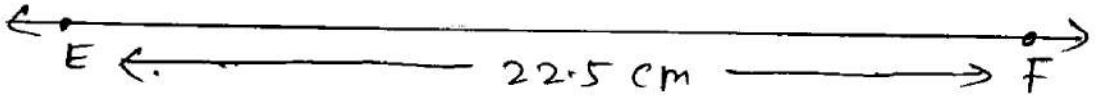
docs.aglasem.com

aglasem.com

(v) $2AB + 3CD = 2(7.5) + 3(2.5)$

$= 15 + 7.5 = 22.5$

Draw a line $EF = 22.5$ cm.



Q.5 Fill in the blanks.

(i) A part of a line with two end points is called a _____

(ii) Segment AB is _____ segment BA

(iii) The length of a line segment is the _____ distance between two end points.

(iv) Two segments are concurrent only if they have _____

(v) Two segments of the same length are said to be _____

Solution (i) Line Segment (ii) equal to

(iii) Shortest (iv) equal length

(v) Congruent.

docs.aglasem.com

aglasem.com

Q.6 Match the following statements

Column A	Column B
(i) Line segment has	(a) at point
(ii) Two segments may intersect	(b) If they have equal lengths
(iii) Two segments are congruent	(c) two end points
(iv) Line segment is	(d) Portion of a line.

Solution (i) → c (ii) → a (iii) → b

(iv) → d

Q.7 Tell which of the following statements are true (T) and which are false (F):

(i) The intersection of two segments may be a segment

(ii) Two segments may intersect at a point which is not any end point of either segments containing it.

(iii) Every ray is a segment (iv) every segment is a ray.

aglasem

docs.aglasem.com

aglasem.com

12

Solution: (i) False (ii) True (iii) True

(iv) False

Q.8 What is the difference between a line, a line segment and a ray?

Solution: Line: Line can be drawn in both directions to infinity.



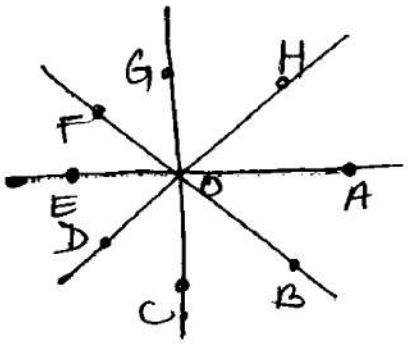
Line Segment: Line Segment has two end points.



Ray: Ray has one end point and another end can be produced indefinitely.



Q.9 How many rays are represented in fig 18.8? Name them.



Answer:

There are 8 rays.

$\overrightarrow{OA}$, $\overrightarrow{OB}$, $\overrightarrow{OC}$, $\overrightarrow{OD}$, $\overrightarrow{OE}$

$\overrightarrow{OF}$, $\overrightarrow{OG}$, $\overrightarrow{OH}$

aglasem
docs.aglasem.com
aglasem.com