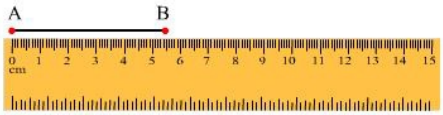
Basic Geometric Tools Ex 18.2 Q1

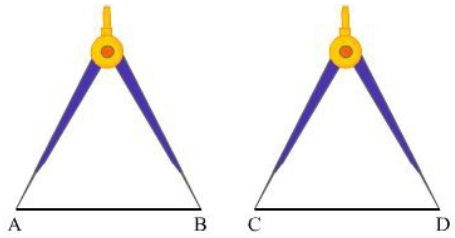
Answer :

Mark two points, A and B on a piece of paper and join them as follows:

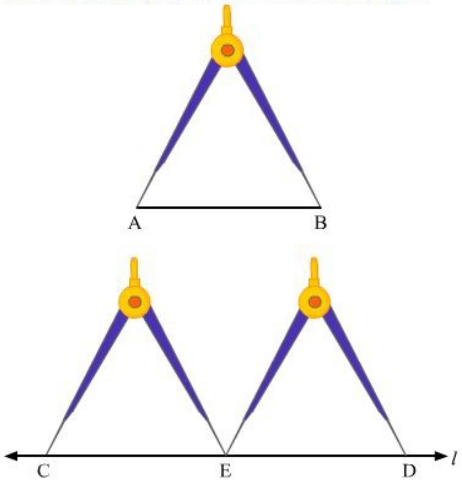


To measure the length of AB, place the ruler with its edge along AB, such that the zero mark of the cm side of the ruler coincides with point A, as shown in the figure.
Now, read the mark on the ruler, which corresponds to the point B.
The reading on the ruler at point B is the length of the line segment AB.
Here, AB = 5.6 cm

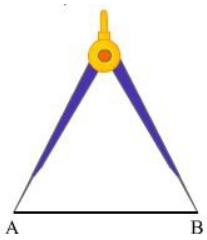
(i) To draw the line segment CD equal to AB, take a divider and open it, such that the end-point of one of its arms is at A and the end-point of the second arm is at B, as shown in the figure.
Then, lift the divider and without disturbing its opening, place the end-points of both hands on the paper, where we have to draw CD.

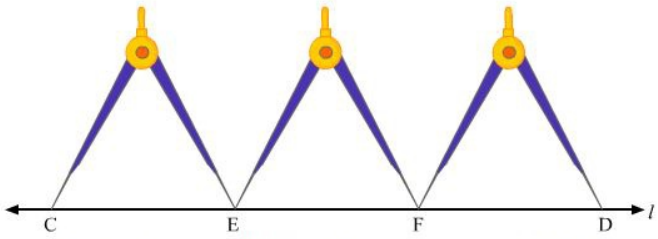


(ii) To draw the line segment twice AB, draw a line *l* and take a point C on it. Now, take a divider and open it such that the end points of both its arms are at A and B.
Then, lift the divider and without disturbing its opening, place one end-point at C and the other end-point on the line *l*, as shown in the figure. Lift the divider and place one end-point at E and the other end-point on the line *l*, opposite C. Name this point D.



(iii) To draw the line segment three times A, we draw a line *l* and take a point C on it. Now take a divider and open it, such that the end-points of both its arms are at A and B.
Then, we lift the divider and place one end-point at C and the other end-point on the line *l*, as shown in the figure.
Let this point be E.
Again, lift the divider and place one end-pint at E and the other end-point on the line *l*, opposite to C.
Let this point be F.
Again, lift the divider and place one end-point at F and the other end-point on the line *l*, opposite to C.
Name this point D.



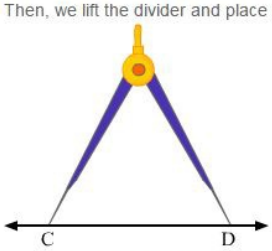


(iv) To draw the line segment that is half AB, we draw a line l and take a point C on it.
Now, using a ruler, we measure the line segment AB and here, AB = 5.6 cm

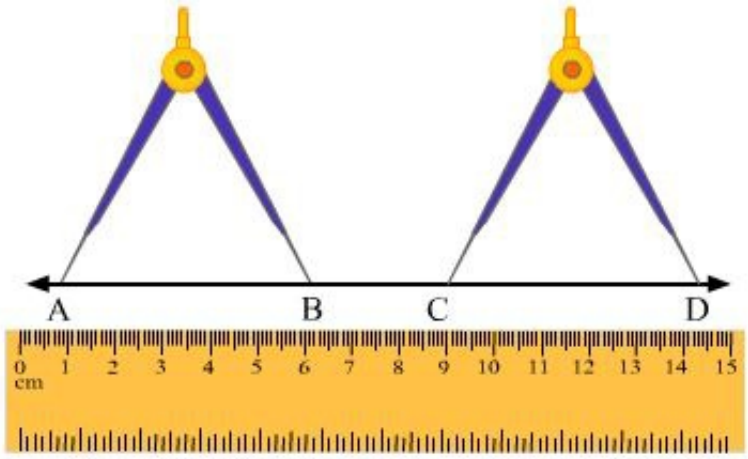
$$\textbf{Half of AB} = \frac{5.6}{2} = 2.8 \textbf{ cm}$$

Now, we take a divider and open it so much that its end of one hand is at 0 and end of the another hand is at 2.8 cm

Then, we lift the divider and place one end at C and the other end on the line l at point D.

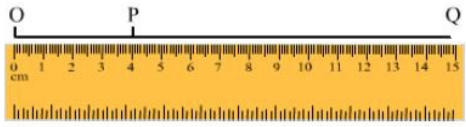


(v) To draw a line segment CD collinear with AB and equal to AB, we take a ruler along AB and draw the line extended to AB, as shown in the figure.
We take a divider and open it such that the end-points of both its arms are at A and B.
Then, we lift the divider and place the end-points of both its hands on the extended line of AB and mark them as C and D.



Basic Geometric Tools Ex 18.2 Q2

Answer :

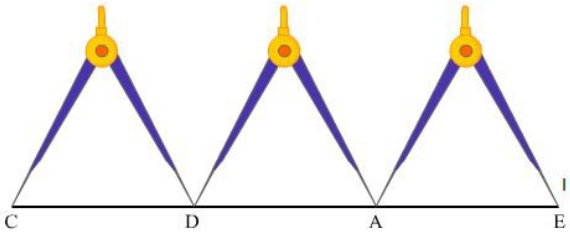


Extend the line segment QP towards point zero of the ruler and take a point O on the extended line QP corresponding to point zero on the ruler.
From the figure, we can say:
OP = 4 cm and OQ = 14.8 cm
Now,
PQ = OQ − OP
= (14.8 − 4) cm
= 10.8 cm

Basic Geometric Tools Ex 18.2 Q3

Answer :

We draw a line *l* and take two points C and D on it.
Take a divider and open it such that its end of both arms are at C and D. Then, we lift the divider and place its one end at D and other end on the line *l* opposite to C as shown in the figure.
Let this point be A.
Lift the divider again and place its one end at A and other end on the line *l* opposite to C.
Name this point as E.
Here
CD = DE = AE
∴ CE = CD + DE + AE
= CD + CD + CD (As, CD ± DE = AE)
or, CE = 3CD



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