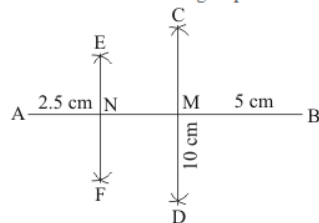## Constructions Ex 17.1 Q5

Answer :

We are asked to bisect the line segment of length 10 cm and again bisect the half of its original line segment

We follow the following steps for the construction

Steps of construction

STEP1: Draw line segment AB having length 10 cm.
STEP2: With centre A and radius greater than half of AB, draw two arcs one on each side of AB.
STEP3: With centre B and taking same radius, draw two arcs one on each side of AB, intersecting the previous two arcs at C and D respectively.
STEP4: Draw a line segment having end-points C and D. Segment CD is the perpendicular bisector of AB. Let CD intersects AB at M.
STEP 5: with centre A and radius greater than half of AM, draw two arcs one on each side of AM.
STEP6: With centre M and taking same radius, draw two arcs one on each side of AM intersecting the previous two arcs at E and F respectively.
STEP7: Draw a line segment having end-points E and F. Segment EF is the perpendicular bisector of AM. Let EF intersects AM at N.
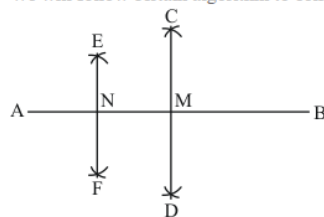STEP8: Measure the length of AN.
Length of line segment AN must be 2.5 cm

Constructions Ex 17.1 Q6

Answer :

We are asked to draw a line segment of any length, bisect it and again bisect it such that it is equals to $\frac{1}{4}(AB)$

We will follow certain algorithm to construct the figure

Steps of construction

STEP1: Draw line segment AB of any length.
STEP2: With centre A and radius greater than half of AB, draw two arcs one on each side of AB.
STEP3: With centre B and taking same radius, draw two arcs one on each side of AB, intersecting the previous two arcs at C and D respectively.
STEP4: Draw a line segment having end-points C and D. Segment CD is the perpendicular bisector of AB. Let CD intersects AB at M.
STEP5: With centre A and radius greater than half of AM, draw two arcs one on each side of AM.
STEP6: With centre M and taking same radius, draw two arcs one on each side of AM, intersecting the previous two arcs at E and F respectively.
STEP7: Draw a line segment having end-points E and F. Segment EF is the perpendicular bisector of AM. Let EF intersects AM at N.

$AN = \frac{1}{4}(AB)$.

Disclaimer: In the question, instead of $\frac{1}{2}\left(AB\right)$, there should be $\frac{1}{4}\left(AB\right)$.

********** END **********