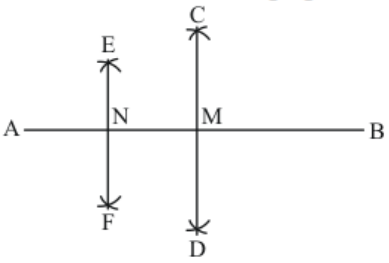
Constructions Ex 17.1 Q7

Answer :

We are asked to draw a line segment AB of any length and get a line segment of Length $\frac{3}{4}(AB)$

We will follow the following algorithm for the construction



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

Here, $NB = \frac{3}{4}(AB)$

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