Geometrical Constructions Ex 19.3 Q5

Answer :

Draw a line segment AB of length 10 cm and bisect it.

(i) With A as centre and radius more than half of AB, draw arcs on both sides of AB.

(ii) With the same radius and B as centre, draw arcs cutting the arcs of step (i) at P and Q, respectively.
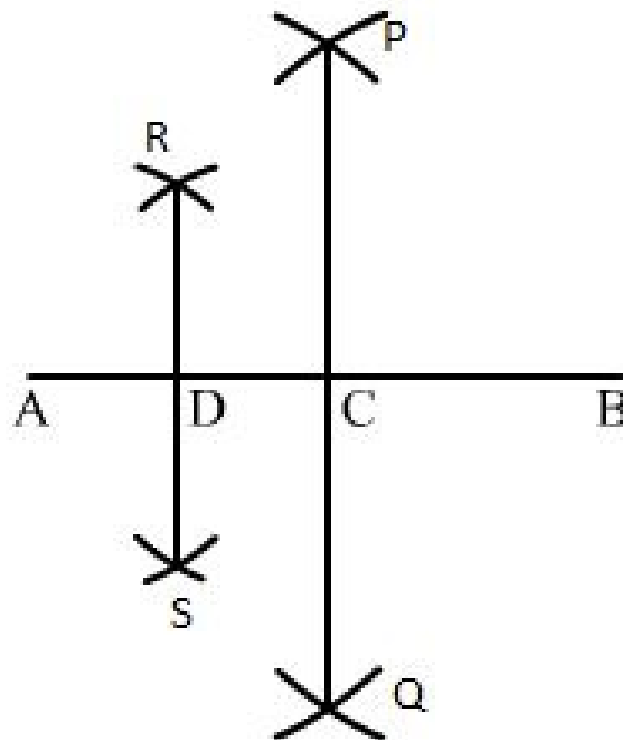
(iii) Join P and Q. Line PQ intersects line AB at C.

(iv) With A as centre and radius more than half of AC, draw arcs on both sides of AB.

(v) With the same radius and C as centre, draw arcs cutting the arcs of step (iv) at R and S, respectively.

(vi) Join R and S.

Line RS intersects AC at D.

If we measure AD with the ruler, we have AD = 2.5 cm

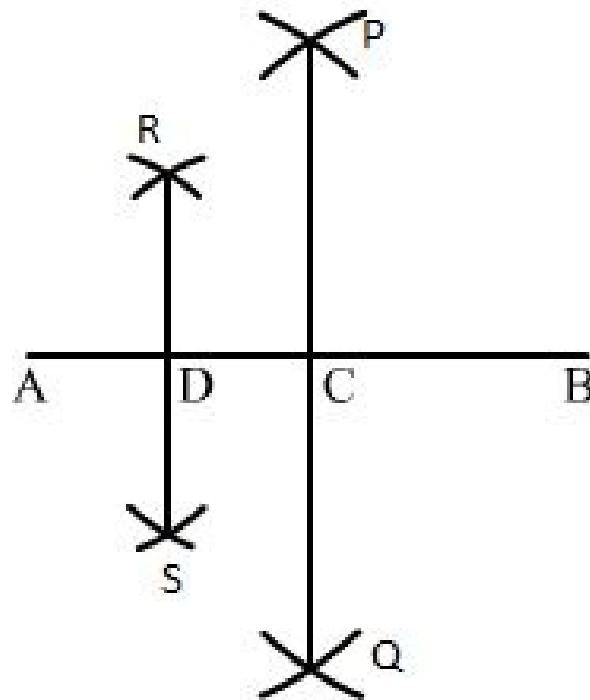## Geometrical Constructions Ex 19.3 Q6

Answer :

Draw a line segment AB.

(i) With A as centre and radius more than half of AB , draw arcs on both sides of AB.
(ii) With the same radius and B as centre, draw arcs cutting the arcs drawn in step (i) at P and Q.
(iii) Join P and Q. PQ intersects AB at C.
(iv) With A as centre and radius more than half of AC, draw arcs on both sides of AC.
(v) With the same radius and C as centre, draw arcs cutting the arcs drawn in step (iv) at R and S.
(vi) Join R and S. RS intersects AB at D.

Now, AC and CB are equal.

Both are $\frac{1}{2}$(AB).

Again, divide AC at D.

So, AD and AC are of same length, i.e., $\frac{1}{4}$(AB).

Geometrical Constructions Ex 19.3 Q7

Answer :

Draw a line segment AB using the ruler.
(i) With A as centre and radius more than half of AB, draw arcs on both sides of AB.
(ii) With the same radius and B as centre, draw arcs cutting the arcs drawn in step (i) at P and Q.
(iii) Join P and Q. PQ intersects AB at C.
(i) With A as centre and radius more than half of AB, draw arcs on both sides of AC.
(ii) With the same radius and C as centre, draw arcs cutting the arcs drawn in step (iv) at R and S.
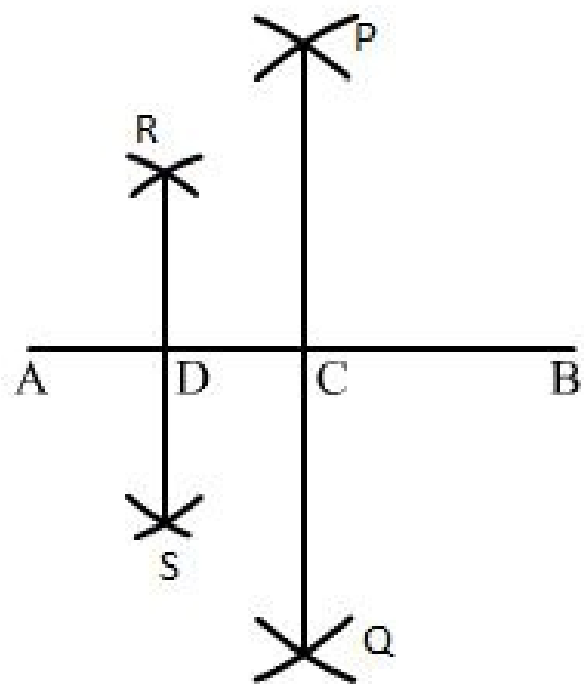(iii) Join R and S. RS intersects AB at D.

Bisect AC again and mark the point of bisection as D.

So, we have:

AD = $\frac{1}{4}$(AB), DC = $\frac{1}{4}$ (AB) and CB = $\frac{1}{2}$(AB)

∴ DB = $\frac{1}{4}$ (AB) + $\frac{1}{2}$(AB) = $\frac{3}{4}$(AB)
Thus, DB is the required line segment of length $\frac{3}{4}$(AB).

R

P

A   D   C   B

S

Q

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