

## Geometrical Constructions

### Exercise 19.1

#### Question: 1

Construct line segments whose lengths are:

- (i) 4.8 cm
- (ii) 12 cm 5 mm
- (ii) 7.6 cm

#### Solution:

(i) Draw a line L on the paper and mark a point A on it.

Take a compass and place its metal point at zero mark of the ruler.

Adjust the compass such that the pencil point is at 4.8 cm mark on the ruler.

Now, take the compass to L such that its metal point is on point A.

Mark a small mark at B on L corresponding to the pencil point of the compass.

AB is the required line segment of 4.8 cm.

(ii) Draw a line L on the paper and mark a point A on it.

Take a compass and place its metal point at zero mark of the ruler.

Adjust the compass such that the pencil point gets placed at the point which is 5 small points from the mark of 12 cm to 13 cm of the ruler.

Now, take the compass to L such that its metal point is on A.

Mark a small mark at B on L corresponding to the pencil point of the compass.

AB is the required line segment of 12 cm 5 mm.

(iii) Draw a line L on the paper and mark a point A on it.

Take a compass and place its metal point at zero mark of the ruler.

Adjust the compass such that the pencil point gets placed at the point which is 6 small points from the mark of 7 cm to 8 cm of the ruler.

Take the compass to L such that its metal point is on A.

Mark a small mark at B on the line L corresponding to the pencil point of the compass.

AB is the required segment of 7.6 cm.

### **Question: 2**

Construct two segments of lengths 4.3 cm and 3.2 cm. Construct a segment whose length is equal to the sum of the lengths of these segments.

### **Solution:**

Using compass and ruler, we construct two segments AB and CD of lengths 4.3 cm and 3.2 cm, respectively.

Draw a line L and mark a point P on it.

Take a compass and place its metal point at A and adjust it, such that the pencil point reaches point B.

Take the compass to line L, such that its metal point is on P.

Mark a small mark at Q on the line L corresponding to the pencil point of the compass.

Now, reset the compass, such that its metal and pencil points are on C and D, respectively.

Take the compass again to line L, such that its metal point is on Q and the pencil point makes a small mark at point R, which opposite to point P on line L

PR is the required segment, whose length is equal to the sum of the lengths of these segments.