Mathematics

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(Chapter – 14) (Practical Geometry)
(Class – VI)

Exercise 14.2

Question 1:

Draw a line segment of length 7.3 cm, using a ruler.

Answer 1:

Steps of construction:

(i) Place the zero mark of the ruler at a point A.

(ii) Mark a point B at a distance of 7.3 cm from A.

(iii) Join AB.

Hence, $\overline{AB}$ is the required line segment of length 7.3 cm.

Question 2:

Construct a line segment of length 5.6 cm using ruler and compasses.

Answer 2:

Steps of construction:

(i) Draw a line 'l'. Mark a point A on this line.

(ii) Place the compasses pointer on zero mark of the ruler. Open it to place the pencil point up to 5.6 cm mark.

(iii) Without changing the opening of the compasses. Place the pointer on A and cut an arc 'l' at B.

$\overline{AB}$ is the required line segment of length 5.6 cm.

Question 3:

Construct $\overline{AB}$ of length 7.8 cm. From this cut off $\overline{AC}$ of length 4.7 cm. Measure $\overline{BC}$.

Answer 3:

Steps of construction:

(i) Place the zero mark of the ruler at A.

(ii) Mark a point B at a distance 7.8 cm from A.

(iii) Again, mark a point C at a distance 4.7 from A.

Hence, by measuring $\overline{BC}$, we find that BC = 3.1 cm

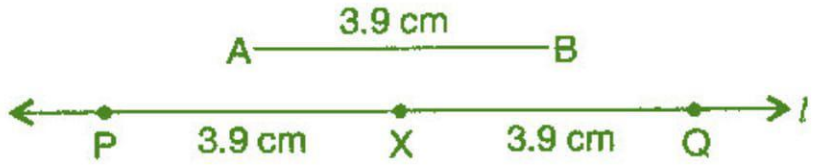
Question 4:

Given $\overline{AB}$ of length 3.9 cm, construct $\overline{PQ}$ such that the length $\overline{PQ}$ is twice that of $\overline{AB}$. Verify by measurement.

(**Hint**: Construct $\overline{PX}$ such that length of $\overline{PX}$ = length of $\overline{AB}$; then cut off $\overline{XQ}$ such that $\overline{XQ}$ also has the length of $\overline{AB}$.

Answer 4:

Steps of construction:



(i) Draw a line 'l'.

(ii) Construct $\overline{PX}$ such that length of $\overline{PX}$ = length of $\overline{AB}$

(iii) Then cut of $\overline{XQ}$ such that $\overline{XQ}$ also has the length of $\overline{AB}$.

(iv) Thus the length of $\overline{PX}$ and the length of $\overline{XQ}$ added together make twice the length of $\overline{AB}$.

Verification:

Hence, by measurement we find that PQ = 7.8 cm
= 3.9 cm + 3.9 cm
= $\overline{AB}$ + $\overline{AB}$ = 2 x $\overline{AB}$

Question 5:

Given $\overline{AB}$ of length 7.3 cm and $\overline{CD}$ of length 3.4 cm, construct a line segment $\overline{XY}$ such that the length of $\overline{XY}$ is equal to the difference between the lengths of $\overline{AB}$ and $\overline{CD}$. Verify by measurement.

Answer 5:

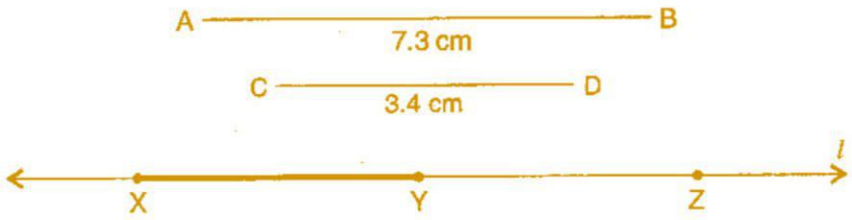
Steps of construction:

(i) Draw a line 'l' and take a point X on it.

(ii) Construct $\overline{XZ}$ such that length $\overline{XZ}$ = length of $\overline{AB}$ = 7.3 cm

(iii) Then cut off $\overline{ZY}$ = length of $\overline{CD}$ = 3.4 cm

(iv) Thus the length of $\overline{XY}$ = length of $\overline{AB}$ – length of $\overline{CD}$



Verification:

Hence, by measurement we find that length of $\overline{XY}$ = 3.9 cm
= 73. Cm – 3.4 cm
= $\overline{AB} - \overline{CD}$