CHAPTER 6

CONSTRUCTIONS

KEY POINTS

1. Construction should be neat and clean and as per scale given in question.
2. Steps of construction should be provided only to those questions where it is mentioned.

QUESTIONS

1. Draw a line segment AB = 7 cm. Take a point P on AB such that AP : PB = 3 : 4.
2. Draw a line segment PQ = 10 cm. Take a point A on PQ such that $\frac{PA}{PQ} = \frac{2}{5}$. Measure the length of PA and AQ.
3. Construct a ΔABC in which BC = 6.5 cm, AB = 4.5 cm and $\angle ACB = 60°$. Construct another triangle similar to ΔABC such that each side of new triangle is $\frac{4}{5}$ of the corresponding sides of ΔABC.
4. Draw a triangle XYZ such that XY = 5 cm, YZ = 7 cm and $\angle XYZ = 75°$. Now construct a $\Delta X'YZ' \sim \Delta XYZ$ with its sides $\frac{3}{2}$ times of the corresponding sides of ΔXYZ.
5. Construct an isoscales triangle whose base is 8 cm and altitude 5 cm and then construct another triangle whose sides are $\frac{3}{4}$ times the corresponding sides of the given triangle.

6. Draw an isosceles ΔABC with AB = AC and base BC = 7 cm and vertical angle is 120°. Construct $\Delta AB'C' \sim \Delta ABC$ with its sides $1\frac{1}{3}$ times of the corresponding sides of ΔABC.

7. Draw ΔPQR in which $\angle Q = 90°$, PQ = 6 cm, QR = 8 cm. Construct $\Delta P'QR' \sim \Delta PQR$ with its sides equal to 2/3rd of corresponding sides of ΔPQR.

8. Construct a right angled triangle in which base is 2 times of the perpendicular. Now construct a triangle similar to it with base 1.5 times of the original triangle.

9. Draw an equilateral triangle PQR with side 5cm. Now construct $\Delta PQ'R'$ such that $\frac{PQ}{PQ'} = \frac{1}{2}$. Measure PQ'.

10. Draw a circle of radius 4 cm with centre O. Take a point P outside the circle such that OP = 6cm. Draw tangents PA and PB to the circle. Measure the lengths of PA and PB.

11. Draw a line segment AB = 8 cm. Taking AB as diameter a circle is drawn with centre O. Now draw $OP \perp AB$. Through P draw a tangent to the circle.

12. Draw a circle of radius OP = 3 cm. Draw $\angle POQ = 45°$ such that OQ = 5 cm. Now draw two tangents from Q to given circle.

13. Draw a circle with centre O and radius 3.5 cm. Draw two tangents PA and PB from an external point P such that $\angle APB = 45°$. What is the value of $\angle AOB + \angle APB$.

14. Draw a circle of radius 4 cm. Now draw a set of tangents from an external point P such that the angle between the two tangents is half of the central angle made by joining the points of contact to the centre.

15. Draw a line segment AB = 9 cm. Taking A and B as centres draw two circles of radius 5 cm and 3 cm respectively. Now draw tangents to each circle from the centre of the other.

16. Draw a circle of radius 3.5 cm with centre O. Take point P such that OP = 6 cm. OP cuts the circle at T. Draw two tangents PQ and PR. Join Q to R. Through T draw AB parallel to QR such that A and B are point on PQ and PR.

17. Draw a circle of diameter 7 cm. Draw a pair of tangents to the circle, which are inclined to each other at an angle of 60°.

18. Draw a circle with centre O and radius 3.5 cm. Take a horizontal diameter. Extend it to both sides to point P and Q such that OP = OQ = 7 cm. Draw tangents PA and QB one above the diameter and the other below the diameter. Is PA || BQ.