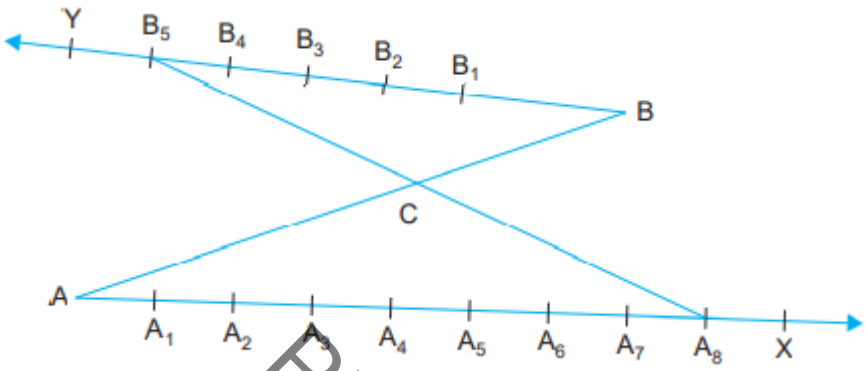
# CONSTRUCTIONS-PRACTICE WORKSHEET

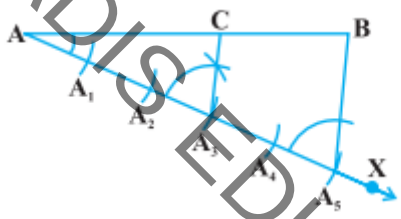
## SHORT ANSWER TYPE QUESTION (2 MARKS)

Q.1. In the given figure, A1, A2, A3 --- and B1, B2, B3 ,----- are marked at equal distances. Answer the following questions.




(i) In what ratio point C divides AB ? [Ans: 8:5]
(ii) If AB = 13cm then find the length of AC. [Ans: 8cm]

Q.2, In the given figure, A1, A2, A3, A4, A5 are marked at equal distances. Answer the following questions.



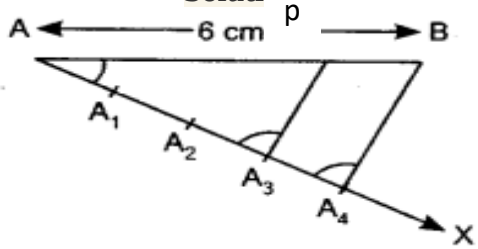

(i) In what ratio point C divides AB? [Ans: 3:2]
(ii) If AB = 5cm then find the length of AC. [Ans: 3cm]



## LONG ANSWER TYPE QUESTION (3 MARKS)

Q.1. Draw a line segment of length 6 cm. Using compasses and ruler, find a point P on it which divides it in the ratio 3:1.

**Soluti** p



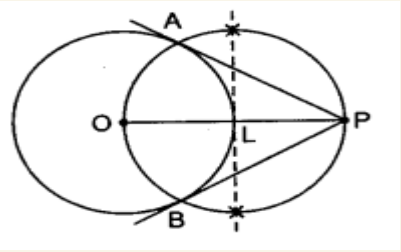

**Steps of Construction** : 1. Draw AB = 6 cm with the help of scale.
2. Draw any ray AX, making an acute angle with AB.
3. Locate 4 (= 3 + 1) points A1, A2, A3 and A4 on AX so that AA1 = A1 A2 = A2 A3 = A3 A4 .
4. Join BA4 .
5. Through the point A3 (m = 3), draw a line parallel to A3 P (by making an angle equal to ∠ AA4B) at
A3 intersecting AB at the point P. Then, AP:PB = 3 : 1

Q.2. Draw a line segment of length 8 cm and divide it in the ratio 3 :5.Measure the two parts.
Q.3. Draw a line segment of length 5 cm and divide it in the ratio 2:3. Measure the two parts.

Q.4. Draw a pair of tangents to a circle of radius 3 cm, which are inclined to each other at an angle of 60°.

Q.5. Draw a circle of radius 4 cm. From a point P, 9 cm away from the centre of the circle, draw two tangents to the circle. Also, measure the angle between two radii through point of contacts of two tangents.

**Solution:**




Steps of construction:

1. A circle, with centre O and radius 4 cm is drawn.
2. A point P is taken, outside the circle at a distance of 9 cm from O.
3. Perpendicular bisector of OP is drawn, meeting OP at L.
4. With L as centre and OL as radius a circle is drawn meeting the given circle at A and B.
5. PA and PB are joined.
6. Then PA and PB are the required tangents to the circle and PA = PB = 6.7 cm (approx.)

Q.6. Draw a circle of radius 3 cm. From a point P, 7 cm away from the centre of the circle, draw two tangents to the circle. Also, measure the lengths of the tangents.

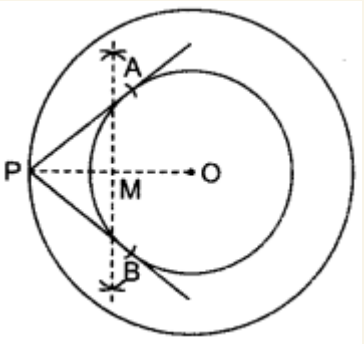
Q.7. Draw two concentric circles of radii 3 cm and 5 cm.Construct a tangent to smaller circle from a point on the larger circle. Also measure its length.

Q.8. Draw a pair of tangents to a circle of radius 4 cm which are inclined to each other at an angle of 60°. Measure the length of the two tangents also.

Q.9. Draw a circle of radius 4cm. Mark a point P on it .Draw a tangents passing through it. Measure the angle between two tangents at P.



**Solution:**




Now after measuring, PA and PB comes out to be 4 cm.

Steps of construction of tangents:

1. Take point O. Draw 2 concentric circles of radii 3 cm and 5 cm respectively.
2. Locate point P on the circumference of larger circle.
3. Join OP and bisect it. Let M be mid-point of OP.
4. Taking M as centre and MP as radius, draw an arc intersecting smaller circle at A and B.
5. Join PA and PB. Thus, PA, PB are required tangents

## LONG ANSWER TYPE QUESTION (4-MARKS)

Q.1. Draw two tangents to a circle of radius 4 cm from a point P at a distance of 6 cm from its centre. Measure the angle between two tangents.

Q.2. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.

Q.3. Construct a tangent to a circle of radius 4 cm from a point on the concentric circle of radius 6 cm and measure its length. Also verify the measurement by actual calculation.

Q.4. Draw a line segment AB of length 8 cm. Taking A as centre, draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle.

Q.5. Draw a pair of tangents to a circle of radius 6cm which are inclined to each other at an angle of $60^0$. Also find the length of the tangent.

Q.6. Construct two concentric circles of radii 3cm and 7cm. Draw two tangents to the smaller circle from a point P which lies on the bigger circle.

Q7. Let ABC be a right triangle in which AB = 6 cm, BC = 8 cm and $\angle$ B = 90°. BD is the perpendicular from B on AC. The circle through B, C, D is drawn. Construct the tangents from A to this circle.

Q8. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 45°. Measure the angle between two radii through point of contact at centre of the circle.