DAY 2

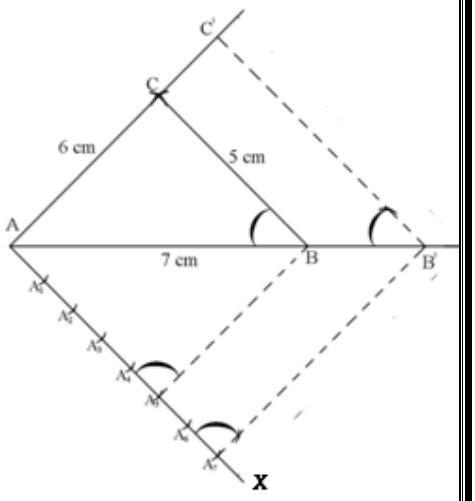
CONSTRUCTION OF A TRIANGLE SIMILAR TO A GIVEN TRIANGLE (Externally)

1. Construct a triangle with sides 6cm, 6cm and 7cm and then draw another triangle whose sides are $\left(\frac{7}{5}\right)^{th}$ of the corresponding sides of the first triangle.

Sol:- Scale Factor $= \frac{7}{5}$

$\Rightarrow$ Given triangle is divided in 5 equal parts then extend its sides and on 7^{th} part draw similar triangle.

- Draw ΔABC with suitable measure.
- Construct any acute angle $\angle BAX$.
- First Draw **4(Denominator)** equal arcs on AX.
- Join points A_5 and B.
- **We've to draw triangle on 7^{th} arc, so draw 2 more equal arcs as previous measure.**
- From A_7, Draw a line segment $A_7B' \,||\, A_4B$
- From B', Draw a line segment $B'C' \,||\, BC$
  Then AB'C' is the required triangle each of whose side is $\left(\frac{7}{5}\right)^{th}$ of the corresponding sides of the triangle.



EXERCISE

1. Construct a triangle with sides 5cm, 6cm and 7cm and then draw another triangle whose sides are $\left(\frac{7}{4}\right)^{th}$ of the corresponding sides of the first triangle.

2. Construct a triangle with sides 6cm, 6cm and 6cm and then draw another triangle whose sides are $\left(\frac{4}{3}\right)^{th}$ of the corresponding sides of the first triangle.

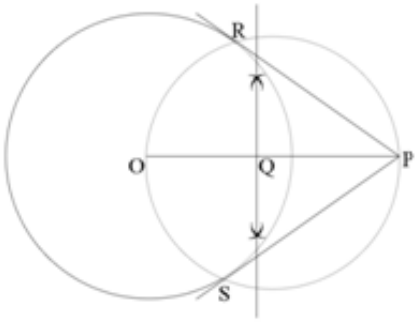
3. Ex 11.1, Q 4,6,7

DAY 3

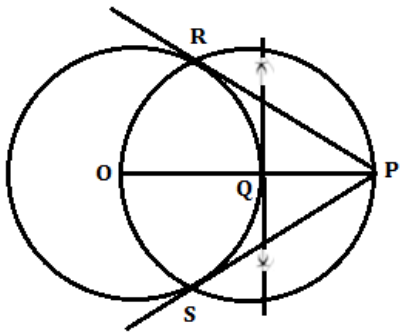
CONSTRUCTIONS OF TANGENTS TO A CIRCLE:-

In last chapter, we have discussed about problems related to tangents. In this section, we shall construct tangents to a circle from a point outside.

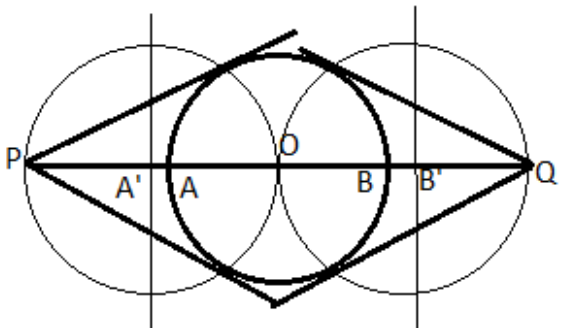
1. **Draw a circle of radius 3 cm. From a point 5 cm away from its centre, construct the pair of tangents to the circle and measure their lengths**.
   - Draw a circle of radius 3cm with centre O.
   - Mark a point P at a distance of 5cm from O.
   - Join OP and draw Perpendicular bisector of it.
   - It bisects OP at Q.
   - With Q as centre and QP = OQ as radius draw another circle cutting the previous at R and S.
   - Join PR and PS which are required tangents.
   - **PR = PS = 4cm**



2. **Draw a circle of radius 3 cm. From a point 6 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.**
   - Draw a circle of radius 3cm with centre O.
   - Mark a point P at a distance of 6cm from O.
   - Join OP and draw Perpendicular bisector of it.
   - It bisects OP at Q.
   - With Q as centre and QP = OQ as radius draw another circle cutting the previous at R and S.
   - Join PR and PS which are required tangents.
   - **PR = PS = 5.2 cm (app)**

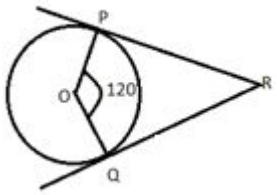


3. **Draw a circle of radius 3cm. Take two points P and Q on one of its extended diameter each at a distance of 7cm from its centre. Draw tangents to the circle from those points P and Q.**
   - Draw a circle with centre O having radius 3 cm.
   - Extend the diameter of the circle on both sides and take two points P and Q on the diameter at a distance of 7 cm from the centre O. Such that OP = 7cm and OQ = 7cm



- Draw Perpendicular bisectors of OP and OQ which bisect both at A' and B'.
- With A' and B' as centre and PA' and QB' as radius, the circles both sides cutting the given circle at T_1, T_2, T_3 and T_4 resp.
- Join PT_1, PT_2, QT_3 and QT_4 which are the required tangents to the circle.

4. **Draw a pair of tangents to a circle of radius 5cm which are inclined to each other at an angle of 60^0.**
   - Mark a point O and draw a circle of radius 5cm with centre O.
   - Draw two radii OP and OQ inclined with each other at $\mathbf{180^0 - 60^0 = 120^0}$
   - At P and Q, draw perpendiculars which meet each other at R such that $\angle PRQ = \mathbf{60^0}$.
   - Then PR and QR are the two required tangents.



EXERCISE

1. Draw a circle of radius 4 cm. From a point 7 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.
2. Draw a circle of diameter 5 cm. From a point 6 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.
3. Draw a circle of radius 3.5 cm. From a point 5 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.
4. **Ex 11.2, Q 1,2,3,5**