

CIRCLES

Activity – 10

1. What we have to do?

To verify using the method of paper cutting, pasting and folding that the lengths of tangents drawn from an external point are equal.

2. What is required?

Coloured paper, geometry box, colour pens, pair of scissors, glue stick, tracing paper

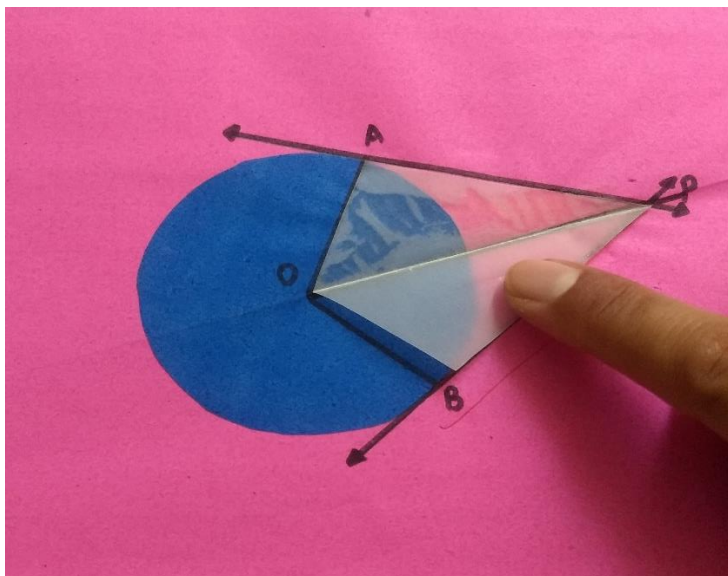
3. Time required: 30 min

4. What do we need to know?

Meaning of tangent to a circle.

5. How will you proceed?

- 1) Draw a circle of any radius on a coloured paper and cut it. Let O be its centre.
- 2) Paste the cut-out on a rectangular sheet of paper.
- 3) Take any point P outside the circle.
- 4) From P fold the paper in such a way that it just touches the circle to get a tangent PA (A is the point of contact). Join PA.
- 5) Repeat step 4 to get another tangent PB to the circle (B is the point of contact). Join PB.
- 6) Join the centre of the circle O to P, A and B.
- 7) Trace the quadrilateral APBO.
- 8) Fold the paper along OP and overlap the ΔAOP on ΔBOP .



6. What have you observed?

It is observed that

- 1) $\triangle OPA$ and $\triangle OPB$ _____ each other. (completely cover/ partially cover)
 - 2) Length of tangent PA _____ Length of tangent PB.
7. **What have you learnt?**

8. **What would you be interested in doing?**

Using the above result find the radius of the circle in which the length of the tangent drawn from a point P outside it at a distance of 13 cm is 12 cm.

Real Life Applications

The above concept of Circles and its properties is useful in different fields such as Astronomy, Designing, Food industry, Architecture, Monuments, commonly used items viz. coins, tyres, bangles etc...
