

ACTIVITY NO - 10

Subject	Mathematics
Class	X
Chapter/Unit	Circles
Topic	Tangent to a circle
Time	25 minutes
Nature of Activity	Individual

What will I learn (Learning Outcome)?

Sum of the opposite sides of a quadrilateral circumscribing the circle is equal.

Skills: Applying, Analyzing and Creating

What I have to do?

To verify that the sum of the opposite sides of a quadrilateral circumscribing the circle is equal by paper folding method.

What do I require?

Coloured paper, white sheet of paper, a pair of scissors, geometry box

What do I need to know?

Tangent to a circle, length of tangents from an external point

➤ Teacher's Activity

Teacher will ask the students:

- 1) Define a tangent to a circle.
- 2) How many tangents can be drawn from a point outside a circle?
- 3) Is the length of tangents drawn from an external point same?

How will I proceed?

➤ Student's Activity

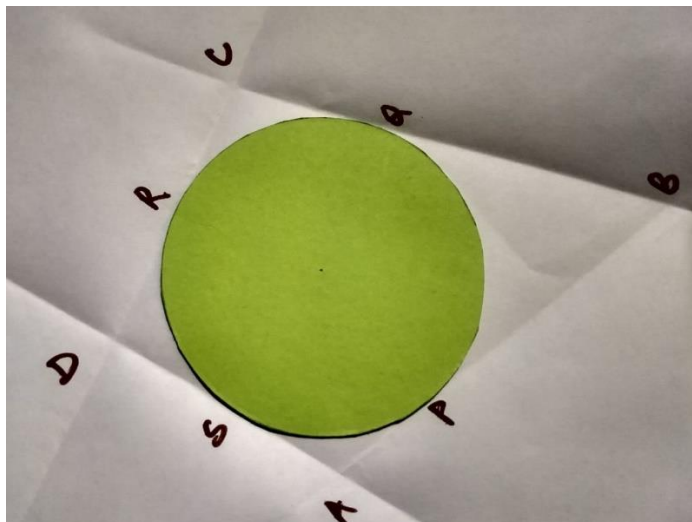
- 1) Cut a circle of any radius (say 5 cm) from a coloured sheet of paper and paste it on a white sheet of paper.
- 2) Fold the sheet along any point (say P) of the circle to get a crease.
- 3) Repeat the same by taking any point R opposite point P.
- 4) Get two more creases from the points Q and S (as shown below).
- 5) The creases formed in the above two steps intersect at four points A, B, C and D forming a quadrilateral ABCD.
- 6) Measure the length of AP, PB, QB, QC, RC, DR, DS and AS.

What have I observed?

- 1) $AP = \underline{\hspace{1cm}}$, $BQ = \underline{\hspace{1cm}}$, $RC = \underline{\hspace{1cm}}$, $DS = \underline{\hspace{1cm}}$.
- 2) $AB + CD = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$.
- 3) $AD + BC = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$.

What have I learnt?

From the above activity it is verified that $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$.

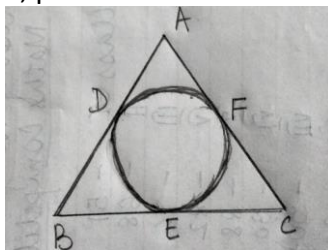


What am I curious to learn?

Repeat the above activity to prove that the parallelogram circumscribing a circle is a rhombus.

Let me evaluate myself

- 1) In the figure, if $AB = AC$, prove that $BE = CE$.



- 2) The incircle of $\triangle ABC$ touches the sides BC, CA and AB at D, E and F respectively.

Show that: $AF + BD + CD = AE + BF + CE$

$$= \frac{1}{2} (\text{Perimeter of } \triangle ABC)$$

