

Pre-Content/content Post-Content	Learning outcomes/Objectives	
	General	Specific
<u>Pre-Content</u> Circles and the related terminology <u>Content</u> Tangent to a circle Tangent to a circle is perpendicular to the radius through the point of contact Tangents drawn from an external point to a circle <u>Post-content</u> To work out extra practice questions	Students will be able to define circle and the related terms introducing tangent as a special case of a secant prove that tangent is perpendicular to the radius prove the theorem to apply the knowledge learnt related to circles	Students will be able to draw a circle and label and define various parts build a new concept called 'Tangent' from the knowledge of Secant prove that tangent is perpendicular to the radius through the point of contact prove that the two tangents drawn from an external point to a circle are equal apply the concept learnt to solve various problems - acquire <u>Problem solving</u> skills based on the given results and conditions.

Home Work /Assignments

NCERT exercise/solved examples given as home task.

Questions from sample papers to solve.

Selected questions from NCERT Exemplar.

Teacher's Activity	Student's Activity	Teacher's observation and Remedial
Teacher will ask the students to draw a circle and define various parts ask the students to draw a secant and then a special secant where it intersects the circle at only one point explain the concept with the help of examples explain the concept of tangents drawn from an external point are equal in measure and prove the same through an activity (Annexure 10) give them extra similar questions for practice	Students will draw the circle and label different parts and define them draw a secant and then a special case of a secant called tangent write the proof and apply the concept follow the instructions given by the teacher to perform the activity (Annexure 10) use the concepts learnt to solve different problems	Teacher will write his/her observations after the completion of the topic.

Teaching Aids: Smart board, Text book, Geometry set, Worksheets, Internet

Methodology/Innovative methods: Digital technology, Interactive, Lecturing, Note giving, Questioning, Discussion

Interdisciplinary Links: Billiards

HOD

Coordinator

Vice- Principal

Principal

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**

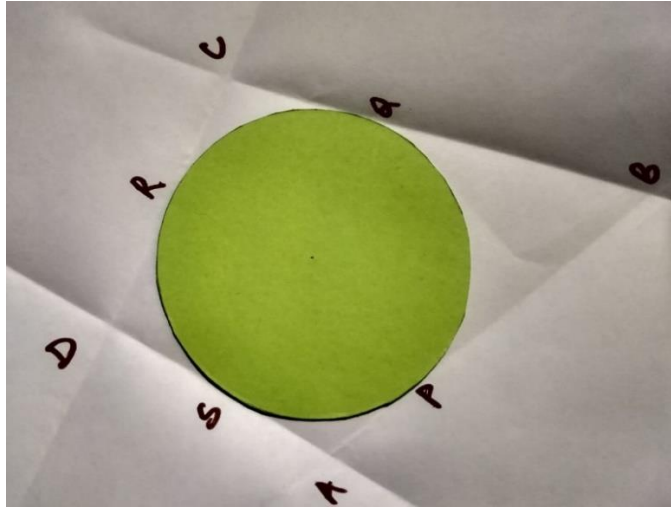
- 1) Cut a circle of any radius (say 5 cm) from a coloured sheet of paper and paste it on a white sheet of paper.
- 2) Fold the sheet along any point (say P) of the circle to get a crease.
- 3) Repeat the same by taking any point R opposite point P.
- 4) Get two more creases from the points Q and S (as 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 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$.

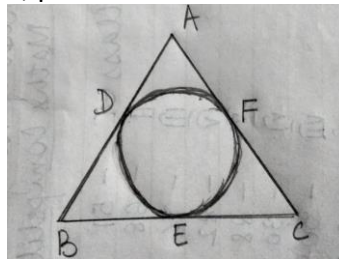


What am I curious to learn?

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

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

