THEME: GEOMETRY AND MEASURES

TOPIC: CIRCLE PROPERTIES – Lesson 6

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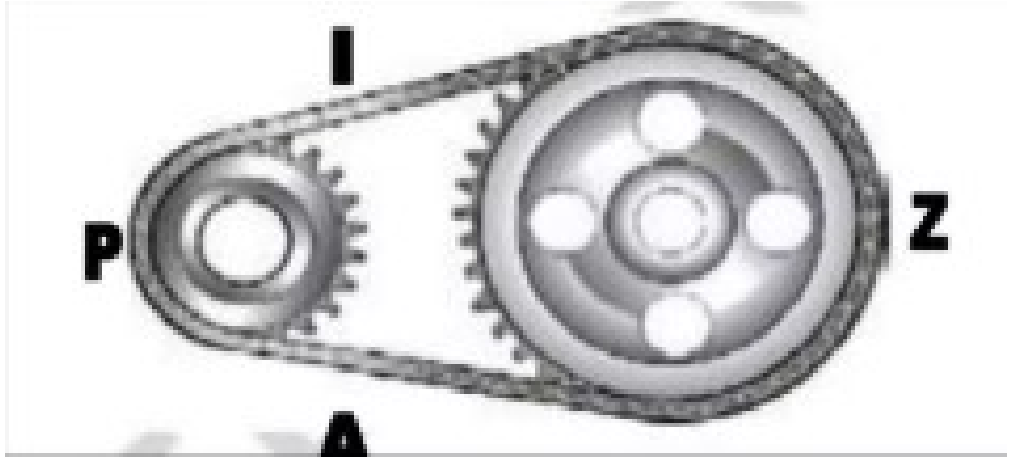
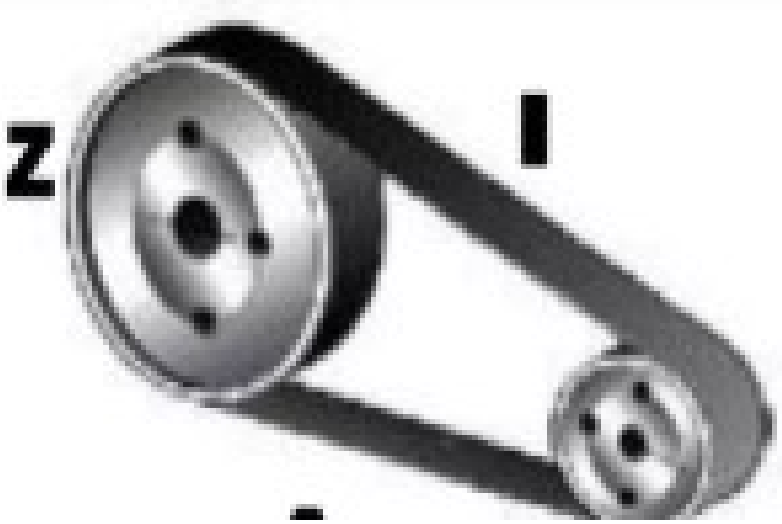
Learning outcome

- By the end of the lesson you should be able to determine the tangent, chord and angle properties of the circle


MARIN


I
P
Z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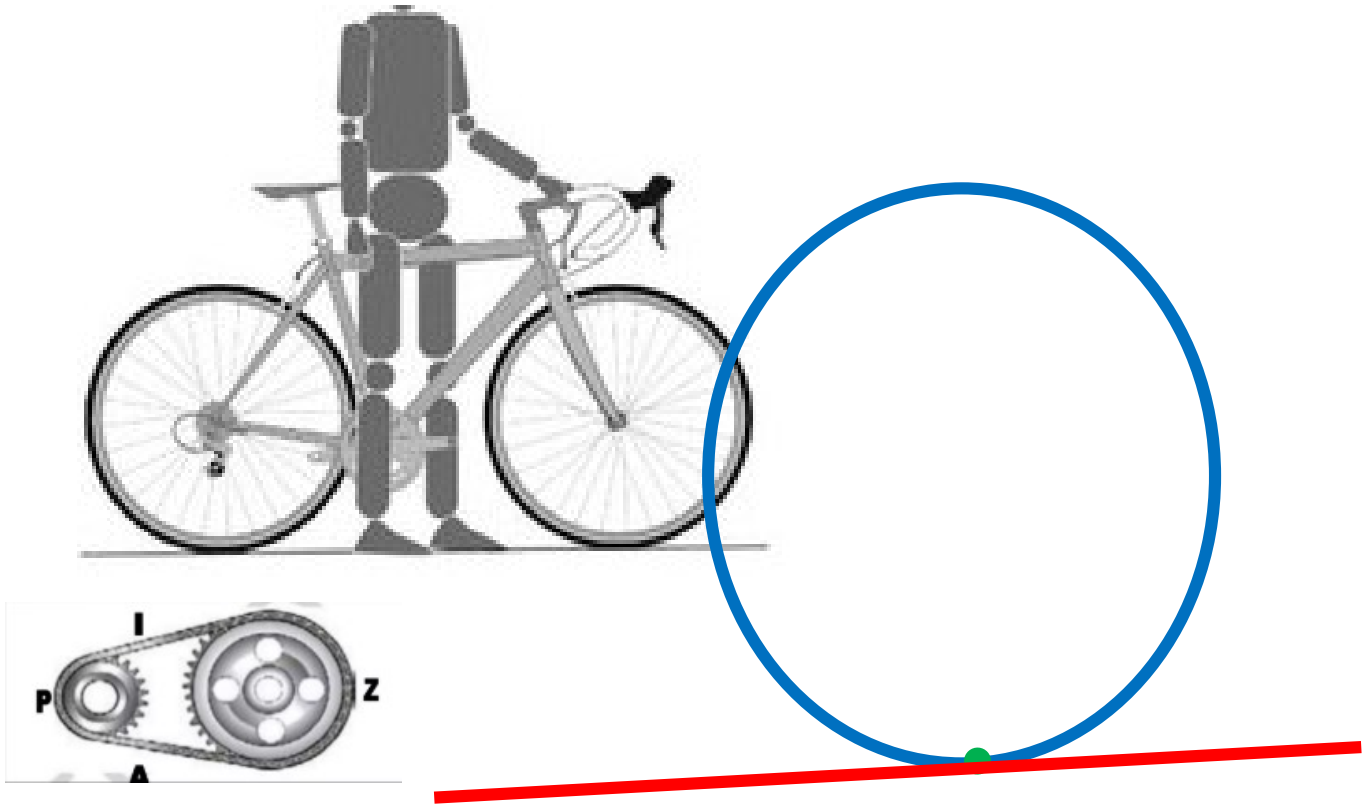
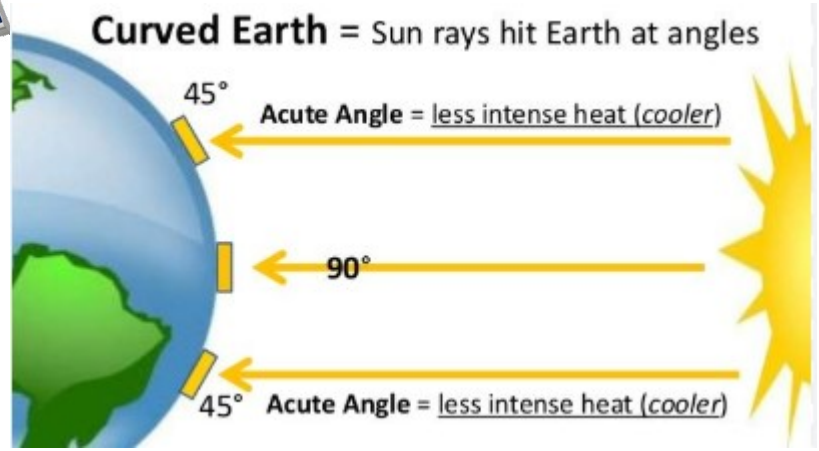
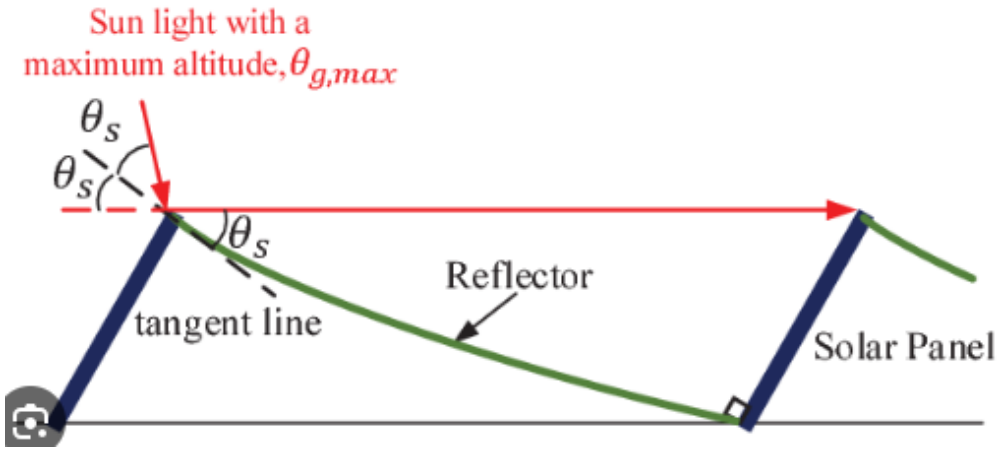


- **The Bicycle Wheel**
- **Tangent**: The tire’s contact point with the ground represents a tangent to the circular wheel. This tangent ensures a smooth and stable ride.
- **Secant**: The spokes of the wheel act as secants, intersecting the circle at two points. The angles between the spokes and their alignment are critical for ensuring the wheel's balance and functionality.





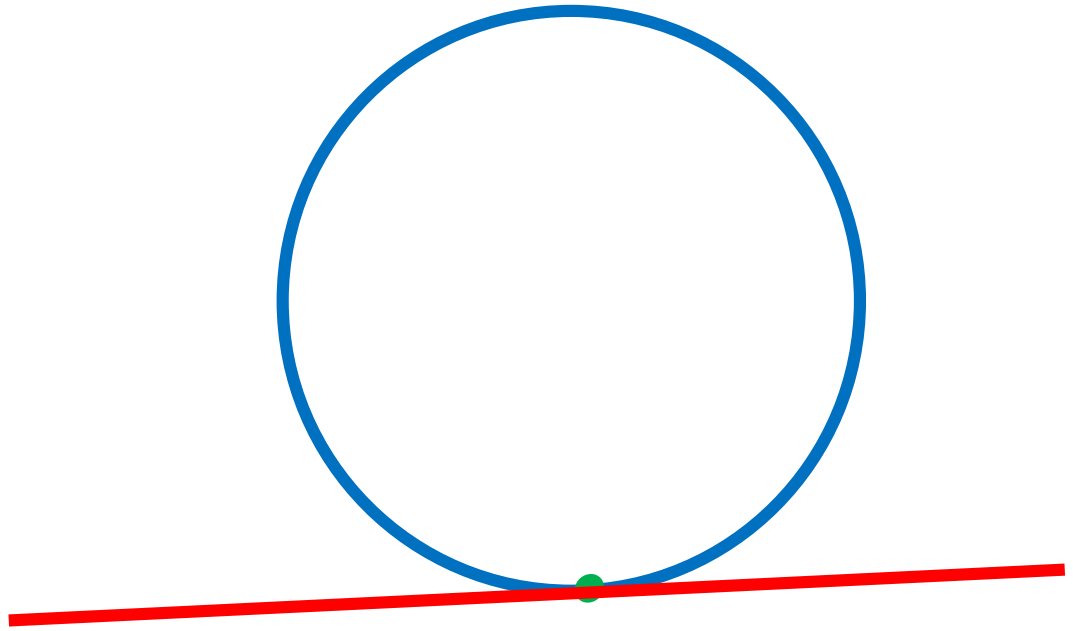
- **Solar Energy Panels**

- The surface of solar panels can be oriented tangentially to the path of the sun’s rays for optimal energy absorption.

TANGENT PROPERTIES

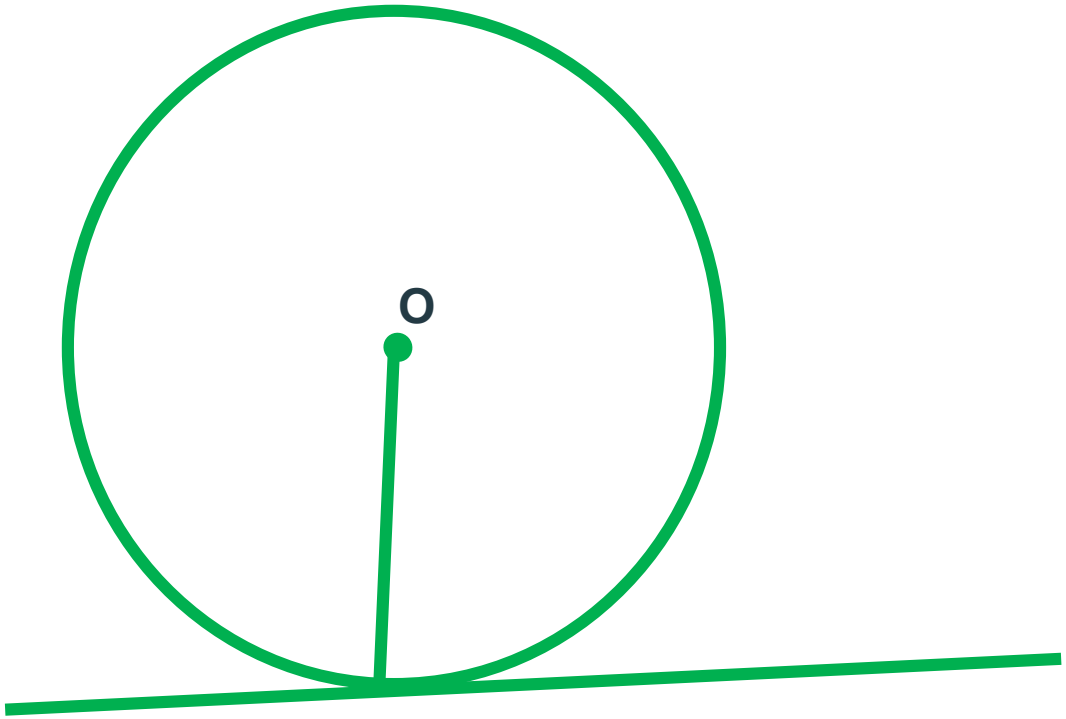
Tangent to a Circle

- A line that touches the circle at a single point is known as a **tangent to a circle**.
- The point where tangent meets the circle is called **point of tangency**.



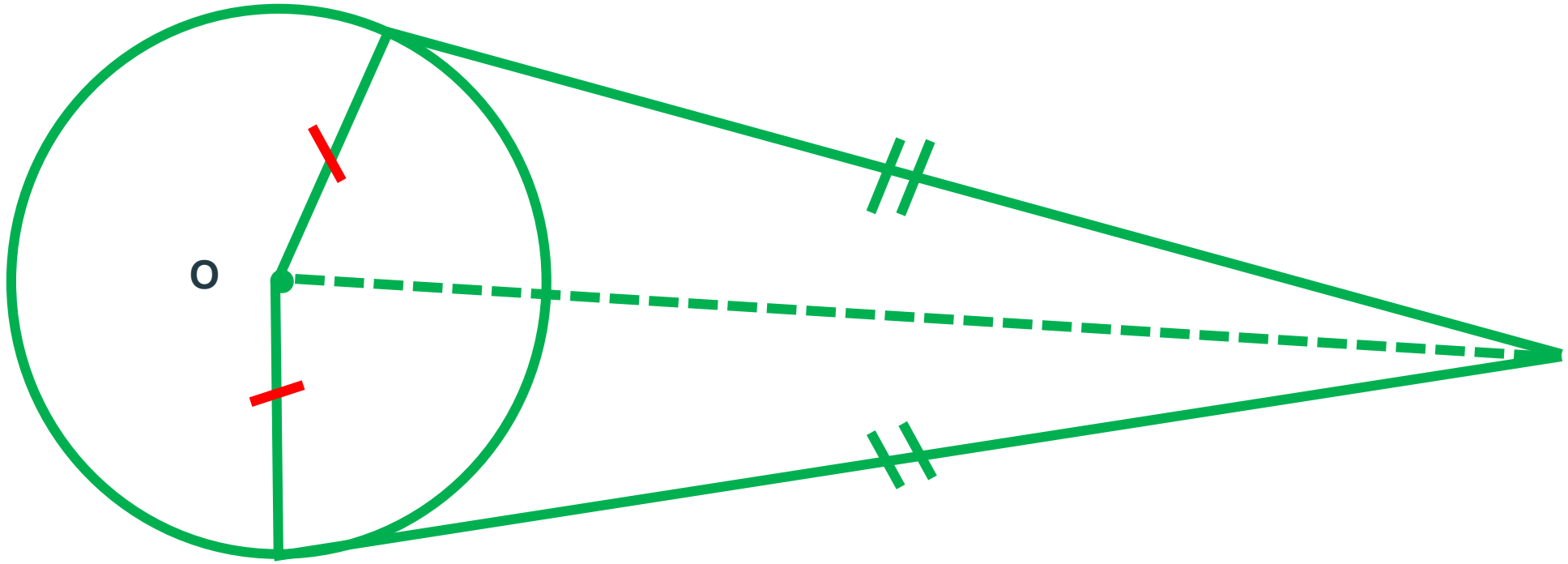
Tangent theorem 1

- *The angle between a tangent at a point and the radius to the same point on the circle is a right angle.*

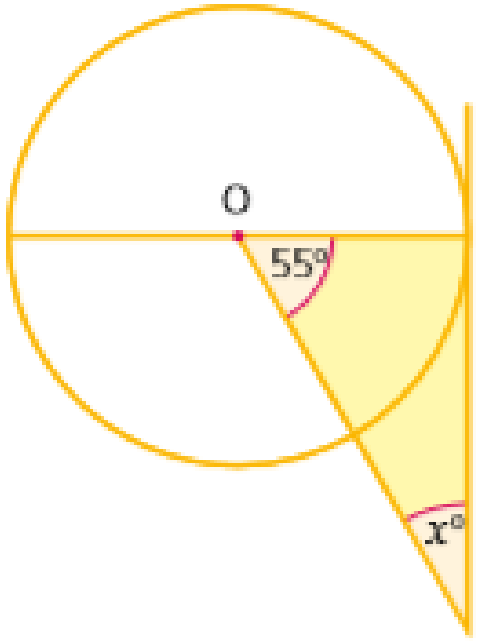


Tangent theorem 2

- This theorem states that if from one external point, two tangents are drawn to a circle then they have equal tangent segments.



Activity



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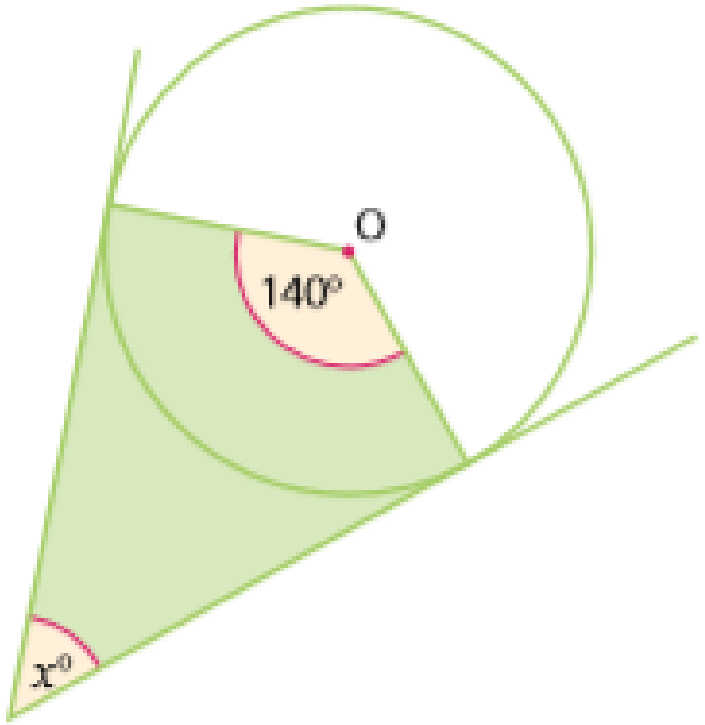
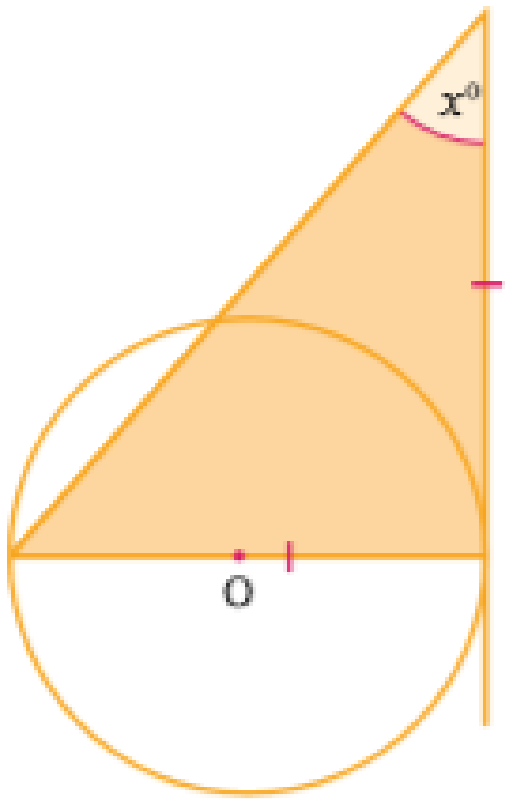
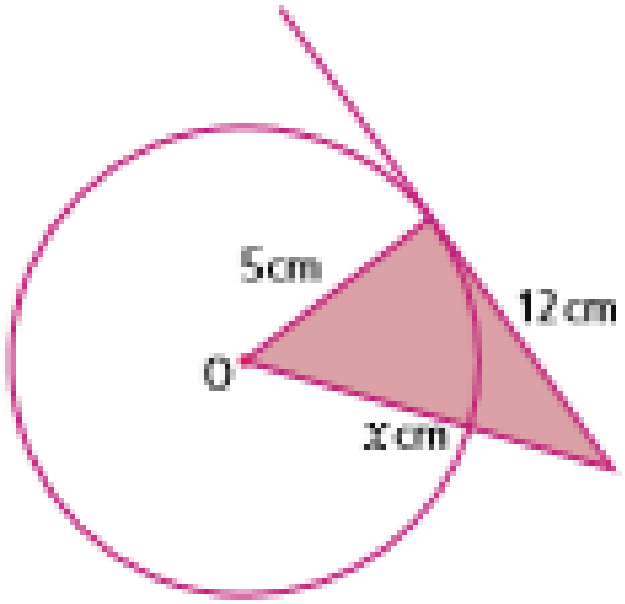


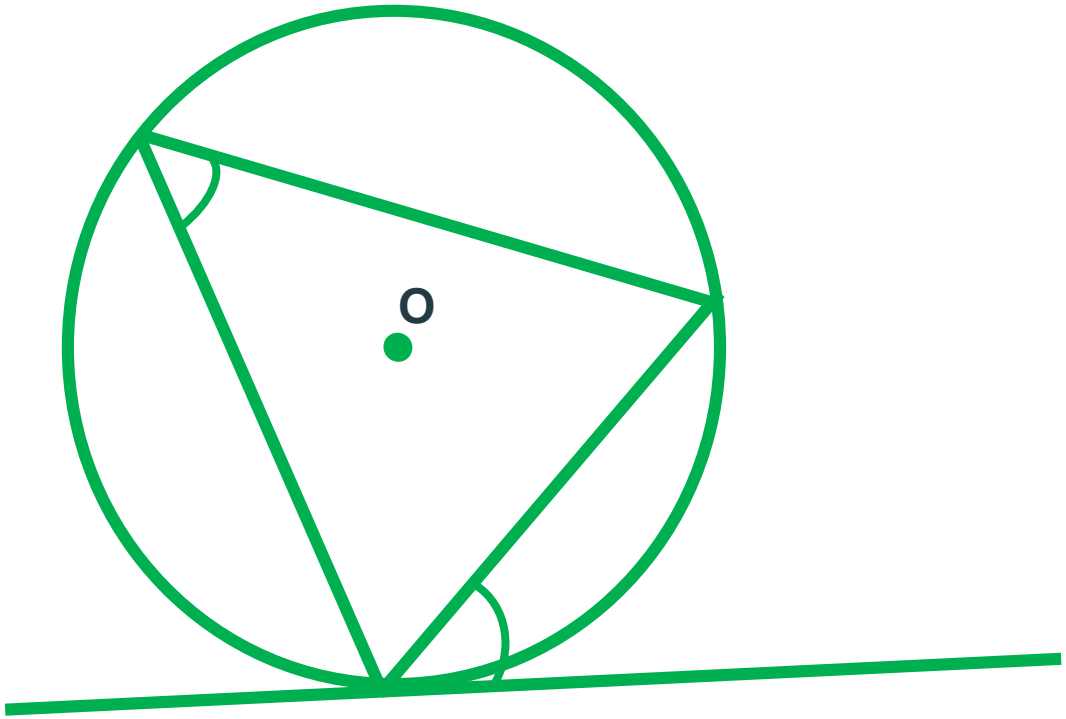

x^0
O


5cm
12cm
O
x cm

Alternate Segment Theorem

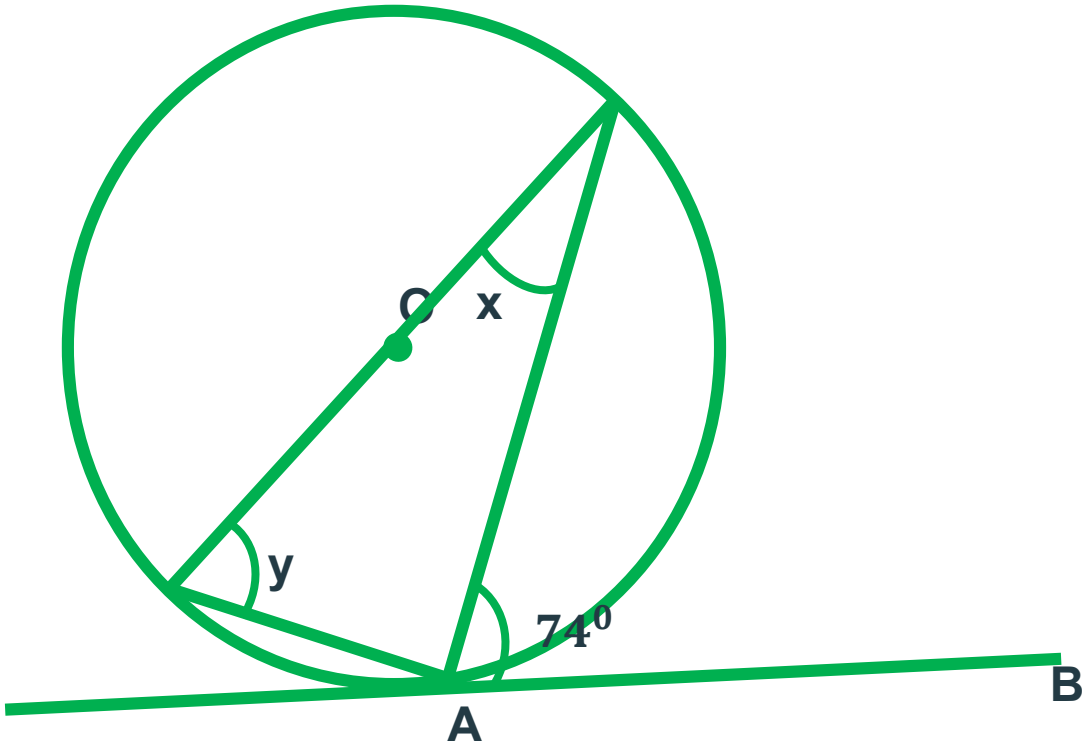
Alternate Segment Theorem

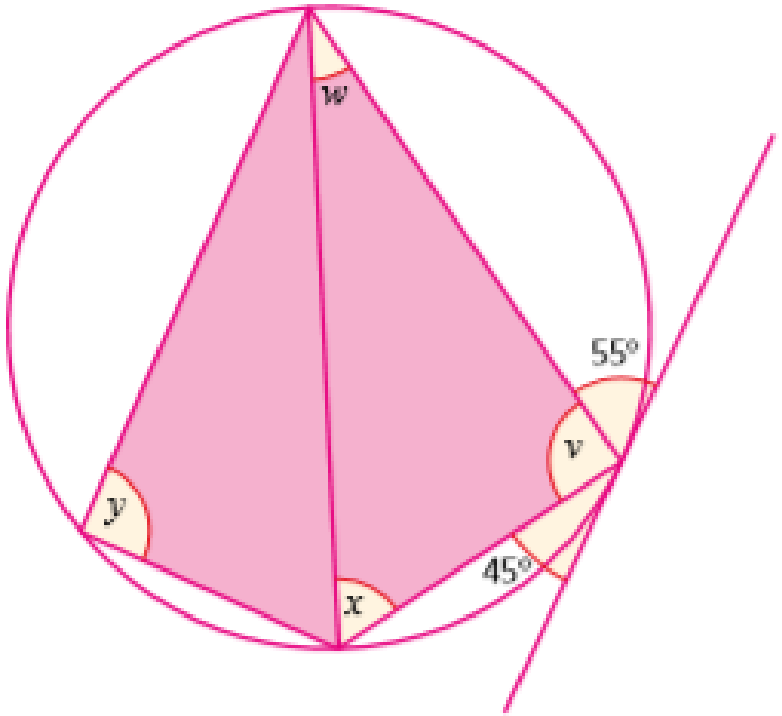
For any circle, the angle formed between the tangent and the chord through the point of contact of the tangent is equal to the angle formed by the chord in the alternate segment

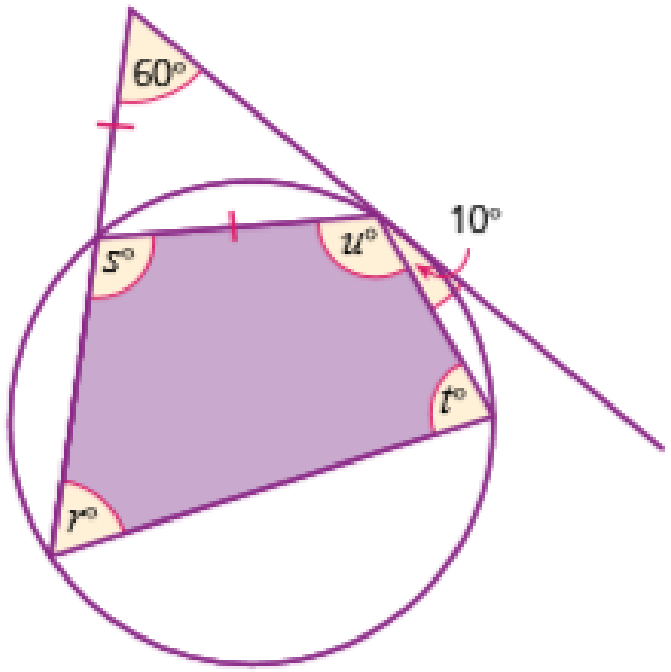


Activity

*In the circle below **O** is the centre . **AB** is a tangent to the circle .Find angle x and y*



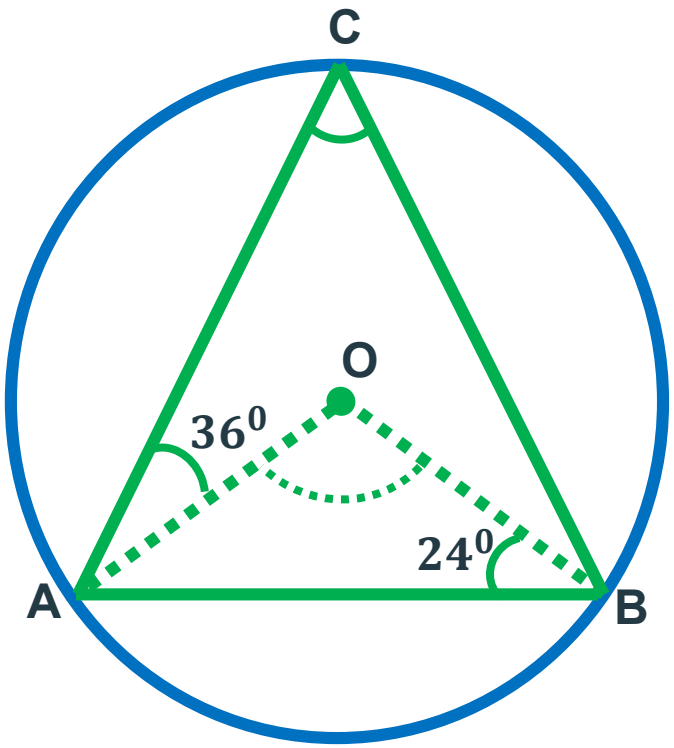

w
55°
v
y
45°
x


60°
10°
s°
u°
t°
r°

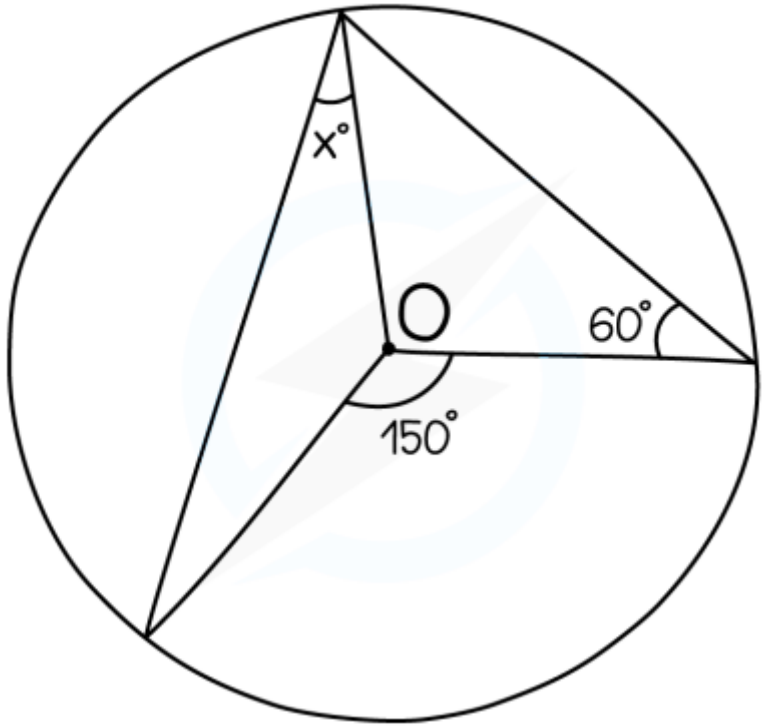
EXTRA

*In the circle below **O** is its centre ∠**ABO = 24°** and ∠**OAC = 36°.***

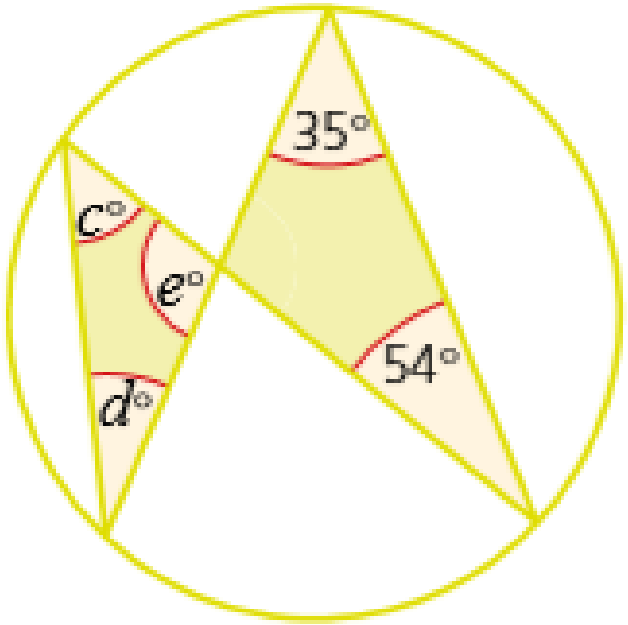
*Find ∠**ACB** and ∠**OBC***



Find the value of x



6 Calculate the values of c, d and e.



7 Calculate the values of f, g, h and i.