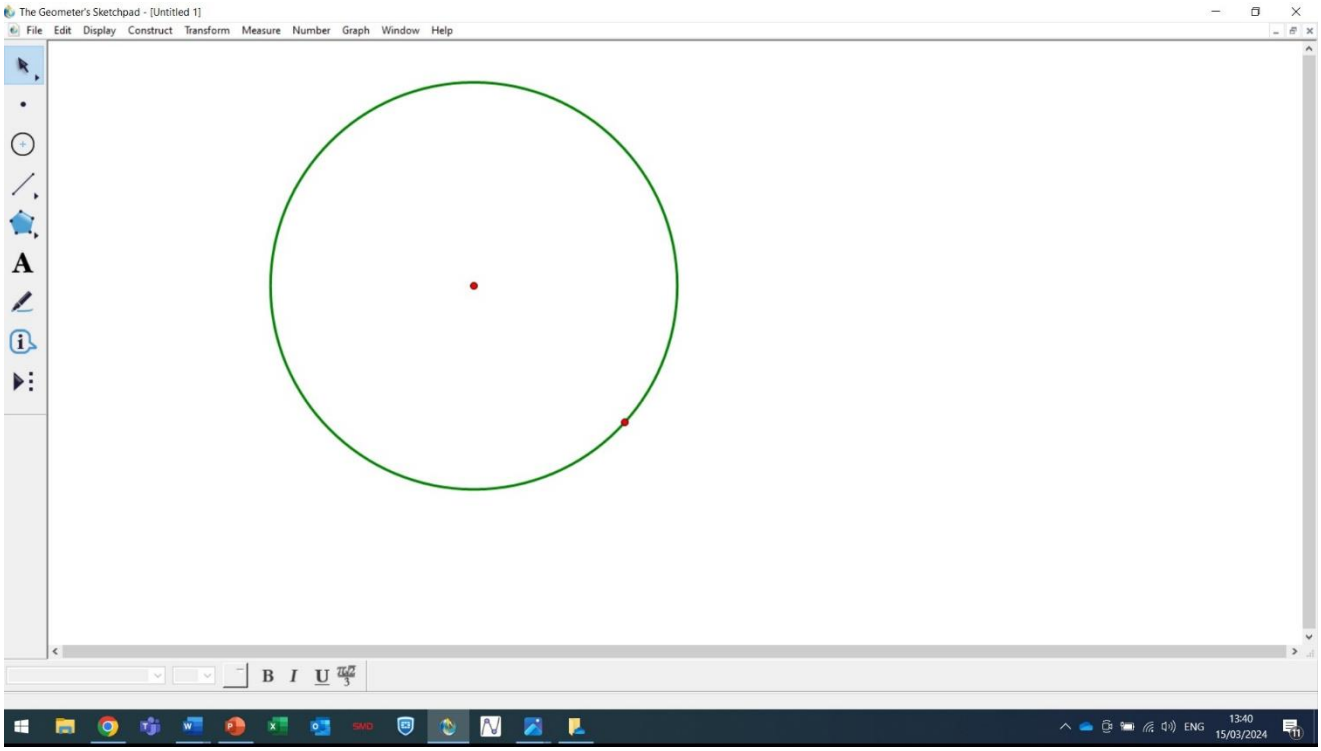
Grade 11: Euclidean Geometry MEMO

Angle at the centre and circumference theorem

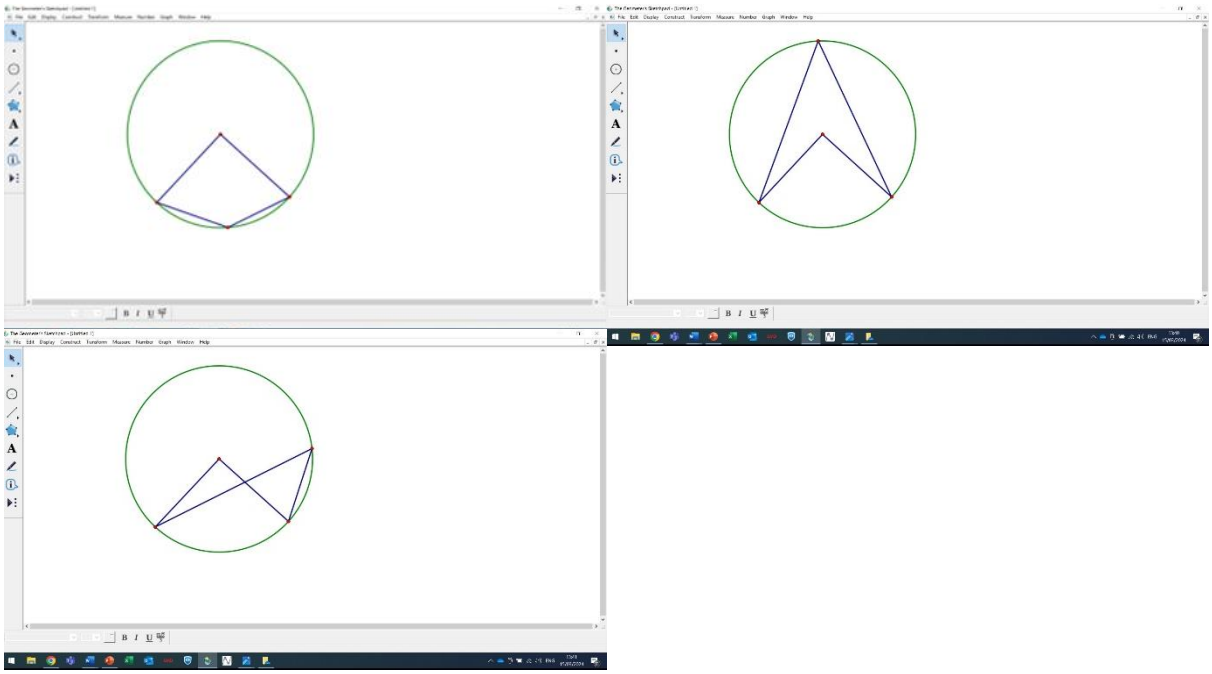
The Geometer's Sketchpad is advantageous, alternatively use Geogebra.

Follow these instructions carefully to guide your learners:

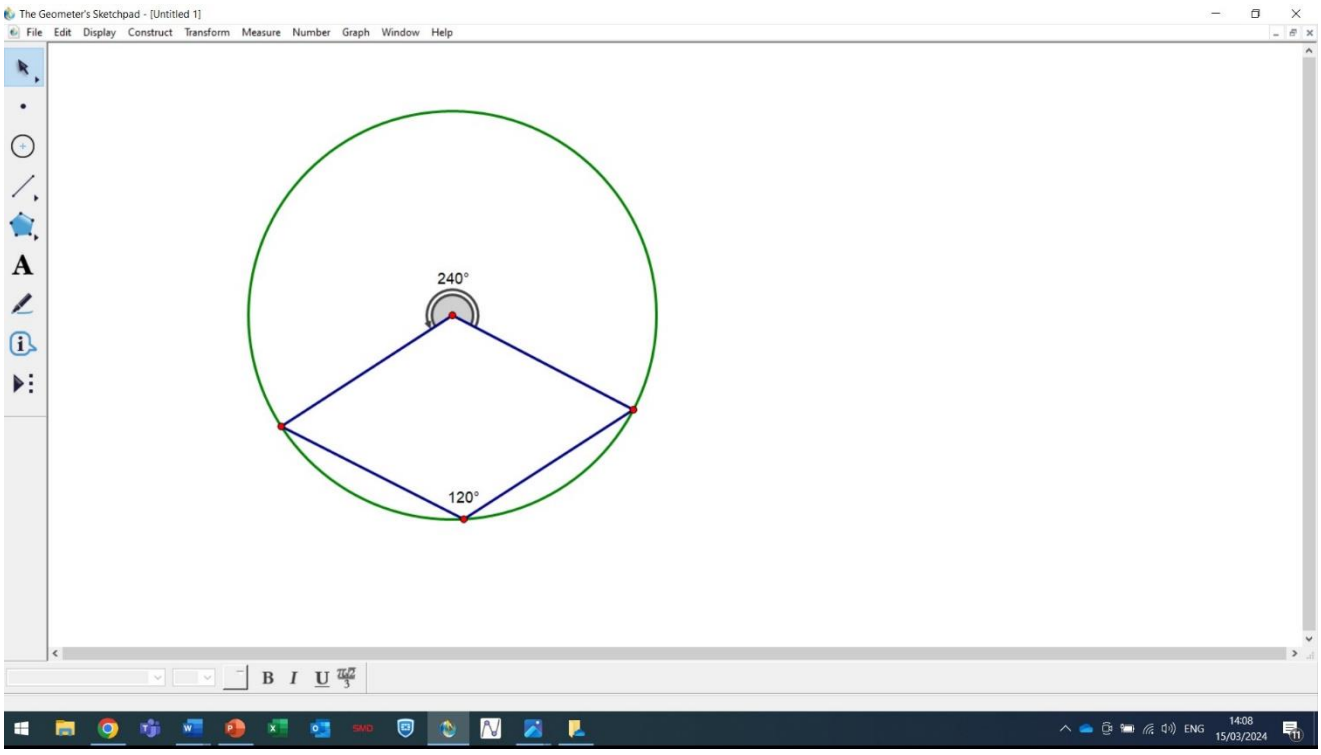
- Draw a circle.

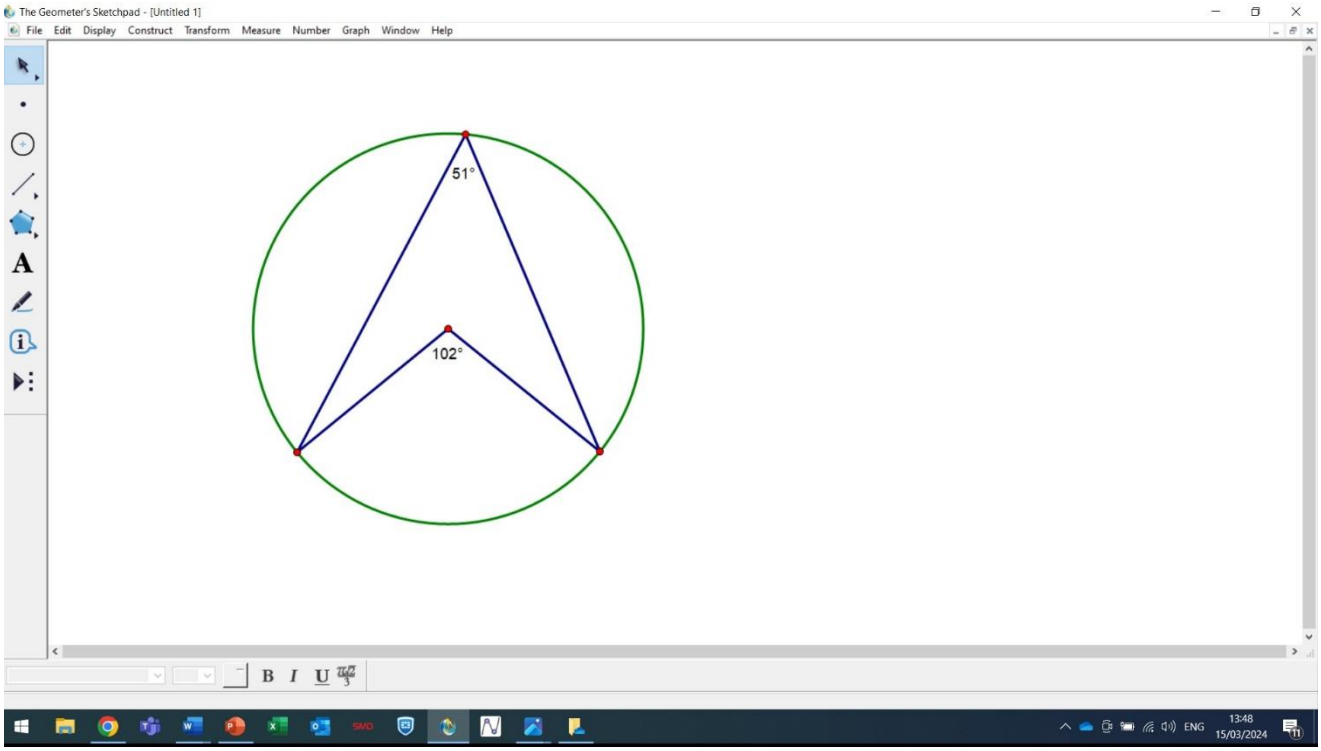


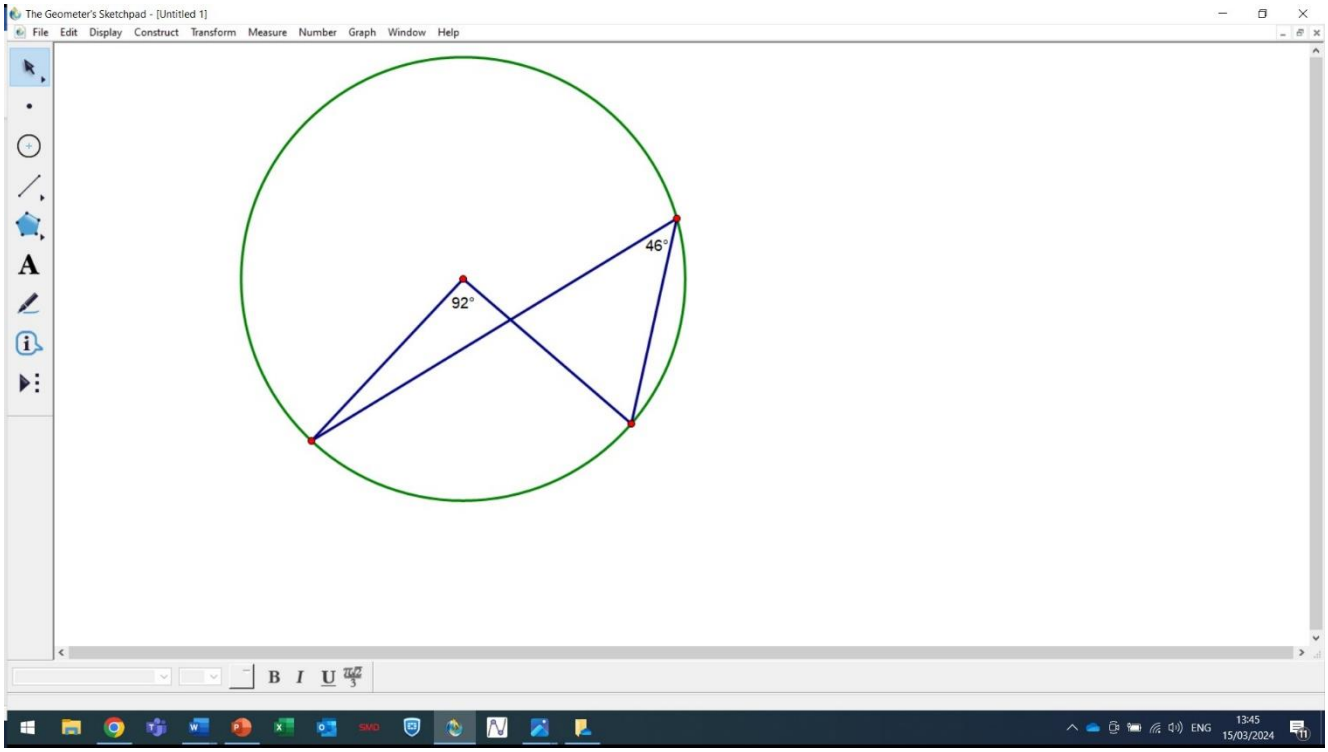
- Draw two radii and two chords in such a way that they form a polygon whose three vertices lies on the circumference of a circle.



- Measure angle between the chords and the angle between the radii.







- What do you observe between these two measured angles?

The angle measured between radii at the centre of the circle is two times the angle measured between two chords at the circumference of the circle.

- What can you conclude about angle measured between radii at the centre of a circle in relation to the angle measured between the chords at the circumference of a circle?

The angle subtended by an arc at the centre of a circle is double the size of the angle subtended by the same arc at the circumference of a circle (on the same side of the chord as the centre).

A special case:

- ❖ The angle subtended on the circle by the diameter is always 90º; or an angle in a semicircle is always a right angle.