

GRADE 11

SUBJECT: MATHEMATICS

WEEK 10 LESSON 1

TOPIC: GEOMETRY

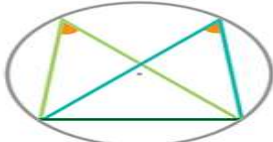
OBJECTIVE: Solve geometric problems using properties of circle and circle theorems.

SUB-TOPIC: CIRCLE THEOREMS

Content:

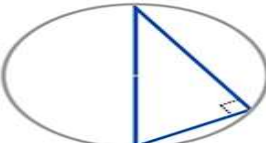
CIRCLE THEOREMS TIGER MOON
THE TILLY MOON TRADING COMPANY LTD

Angles in the same segment and standing on the same chord are always equal.

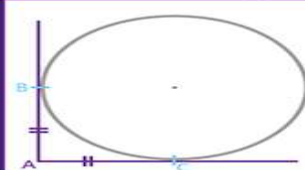


Circles have a number of different angle properties, these are described as Theorems.

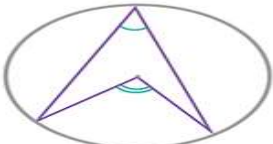
The angle in a semi-circle is always 90° .



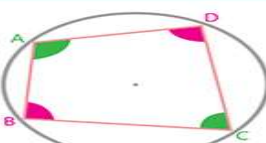
Tangents from a common point (A) to a circle are always equal in length.
AB = AC



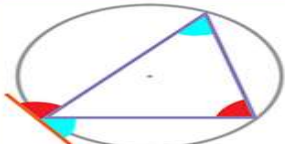
The angle at the centre of a circle is twice the angle at the circumference.



ABCD is a cyclic quadrilateral, all vertices lie on the circumference of the circle. Opposite angles add up to 180° .
 $A+C=180^\circ$ $B+D=180^\circ$

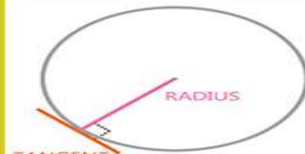


The angle between the tangent and the side of the triangle is equal to the interior opposite angle.

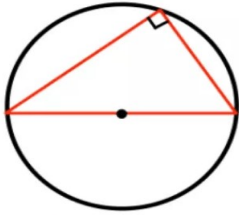


KEY WORDS:
- SUBTENDED - OPPOSITE
- CIRCUMFERENCE - ANGLE
- TANGENT - CHORD
- PERPENDICULAR - SEGMENT

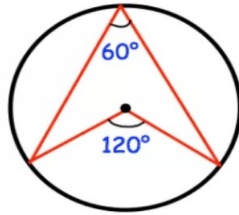
The angle between the tangent and the radius is always 90° .



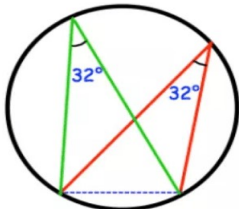
Circle Theorems



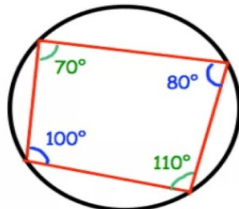
The angle in a semi-circle is 90°



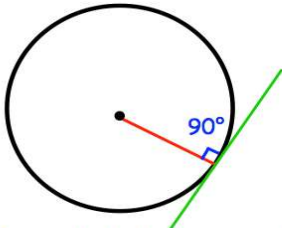
The angle at the circumference is half the angle at the centre



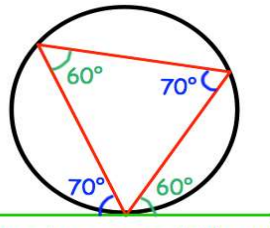
The angles in the same segment from a common chord are equal



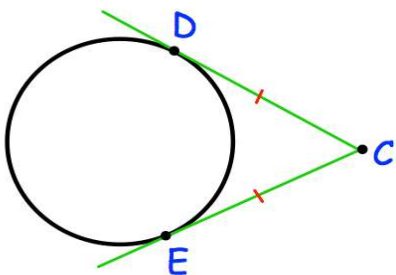
The opposite angles in a cyclic quadrilateral always add to 180°



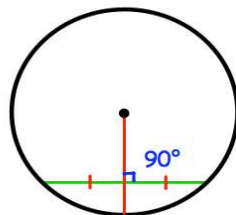
The angle between a radius and a tangent is 90°



Alternate segment theorem
The angle between the chord and the tangent is equal to opposite angle inside the triangle.

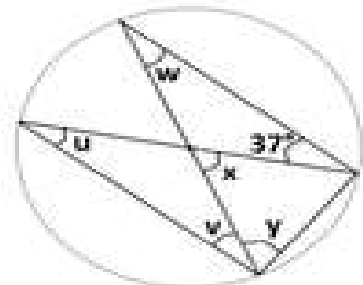
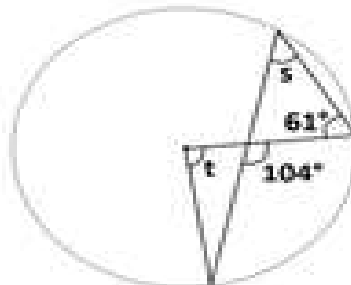
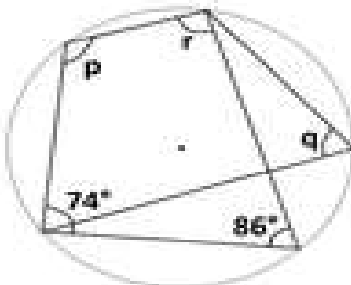
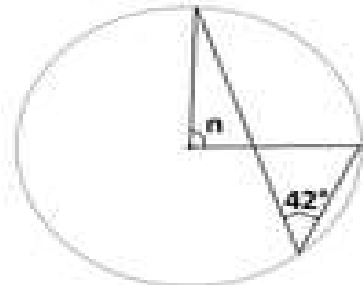
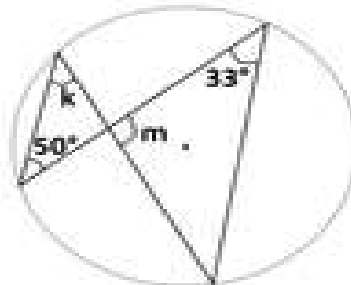
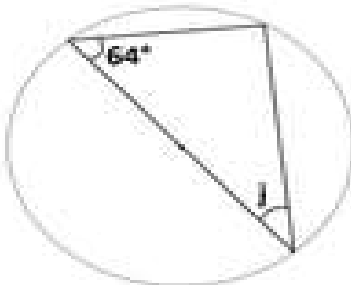
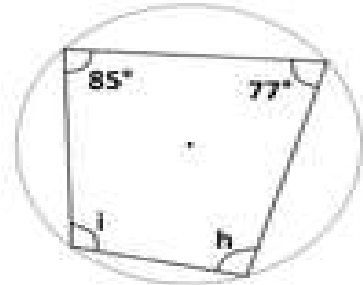
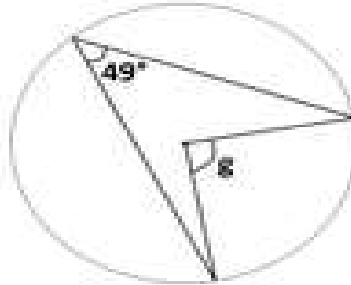
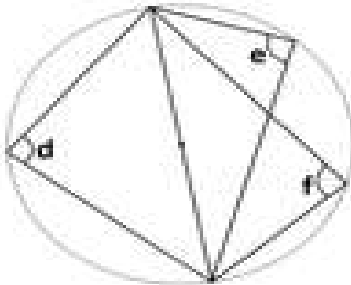
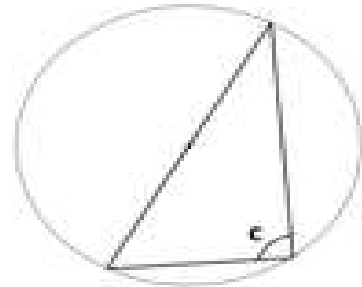
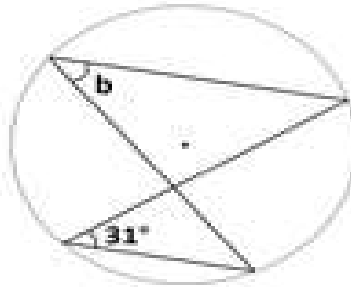
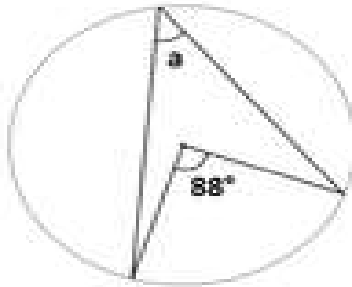


The tangents to a circle from the same point will be equal length



The radius through the midpoint of a chord will bisect the chord at 90°

Using the theorems above, calculate the size of the missing angles.



referenc:

https://www.google.com/search?q=circle+theorems+worksheets+with+solutions&rlz=1C1YQLS_enGY769GY769&sxsrf=ALeKk02vw7UrGNSEn3cnxbXqHQfjj21duA:1600212514600&tbm=isch&source=iu&ictx=1