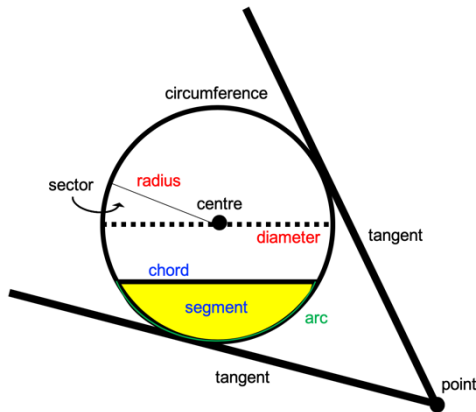


Circle Theorems

Circle Theorems & Glossary Terms

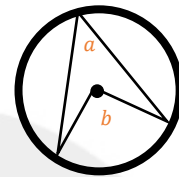


diameter
radius
centre
circumference
sector
chord
segment
point
tangent
arc

RULE ONE

Angles at the centre are twice the angle at the circumference or outer edge (both have the same arc).

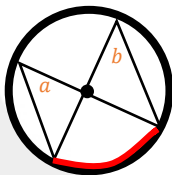
$$b = 2a$$



RULE TWO

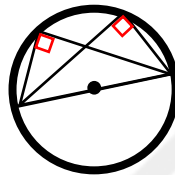
Angles that have the same arc at the circumference are equal

$$a = b$$



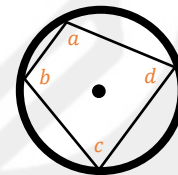
RULE THREE

The angle in a semi-circle made by a triangle passing through the centre is always 90° .



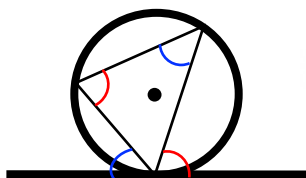
RULE FOUR

Opposite angles in a cyclic quadrilateral ABCD (vertices at the circumference) add up to 180° .



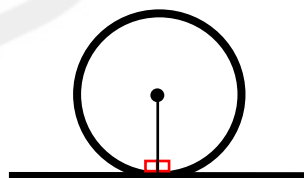
RULE FIVE

The angle between a chord and a tangent equals the angle in the alternate segment.



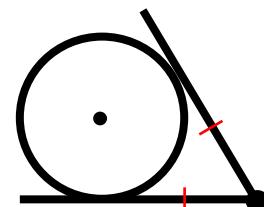
RULE SIX

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



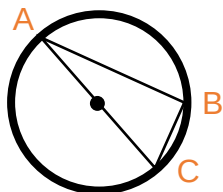
RULE SEVEN

Two tangents from a common point to a circle are equal in length.



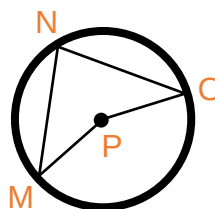
Instructions: Answer the questions below using the circle theorems.

1



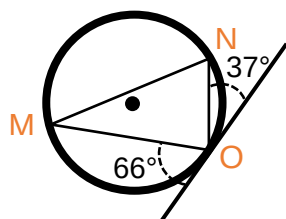
Find $\angle ABC$

2



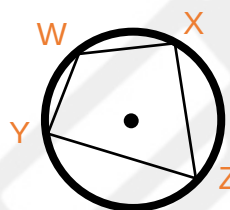
Find $\angle MPO$ if $\angle MNO = 41^\circ$

3



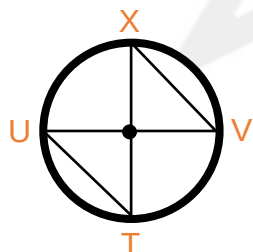
Find $\angle M$

4



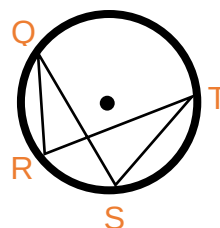
Find $\angle X$ if $\angle Y = 85^\circ$

5



Find $\angle UVX$ if $\angle TUV = 43^\circ$
and $\overline{UV}$ is perpendicular to $\overline{TX}$

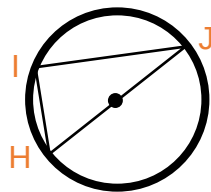
6



Find $\angle QST$ if $\angle QRT = 88^\circ$

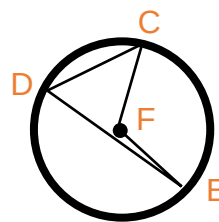


7



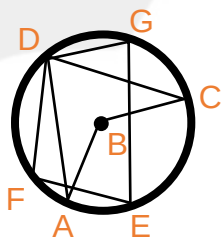
Find $\angle JHI$ if $\angle IJH = 38^\circ$

8



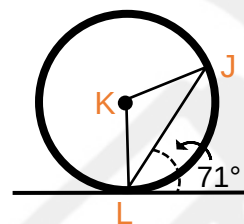
Find $\angle CFE$ if $\angle CDE = 59^\circ$

9



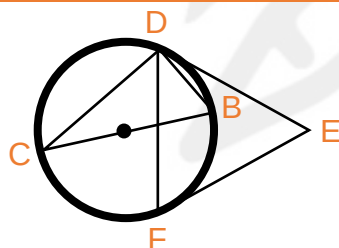
Find $\angle ABC$ if $\angle FDA = 13^\circ$,
 $\angle GDC = 24^\circ$ and $\angle FEG = 68^\circ$

10



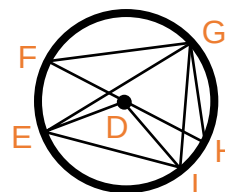
Find $\angle JKL$

11



Find $\angle BDE$ if $\angle E = 64^\circ$
and $\angle CDF = 47^\circ$

12



Find $\angle EID$ if $\angle FGE = 22^\circ$,
 $\angle HGI = 14^\circ$ and $\overline{ED} = \overline{ID}$