

# Circles and Triangles (Higher)

## Measure in circles

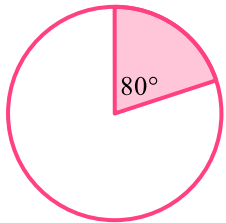
What is the radius of a circle of circumference  $13\text{cm}$ ? Give your answer to the nearest  $\text{mm}$ .

$$= 2.1\text{cm} \text{ or } 21\text{mm}$$

What is the diameter of a circle with area  $10\text{cm}^2$ ?

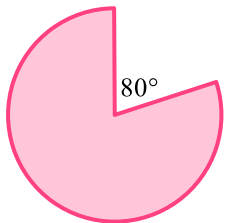
$$= 3.57\text{cm} \text{ (to 2dp)}$$

Calculate the area of the sector, where the radius of the circle is  $9\text{cm}$ .



$$= 56.55\text{cm}^2 \text{ (to 2dp)}$$

Calculate the perimeter of the remaining shape after the above sector has been removed.

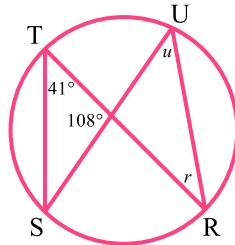


$$= 61.98\text{cm} \text{ (to 2dp)}$$

## Circle theorems

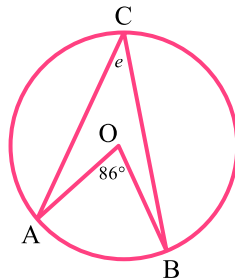
Points R, S, T and U lie on the circumference of a circle. Work out the values of  $u$  and  $r$ .

$$u = 41^\circ \quad r = 31^\circ$$

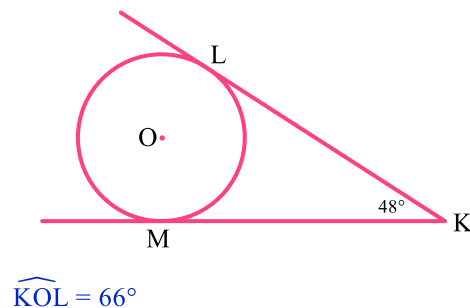


A, B and C are points on a circle with centre O. Given that  $\widehat{AOB} = 86^\circ$ , find the size of angle  $e$ .

$$e = 43^\circ$$

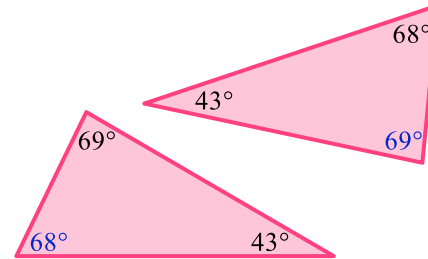


L and M are points on a circle with centre O. KL and KM are tangents to the circle. Work out the size of angle  $\widehat{KOL}$ .



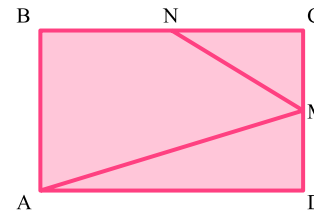
## Similarity and congruence

Are these triangles congruent, similar, or neither? = Similar



## Using trigonometry

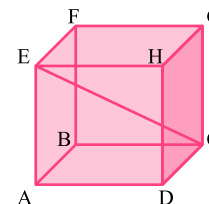
ABCD is a rectangle. M is the midpoint of CD. N is the midpoint of BC.  $AB = 6\text{cm}$ .  $AD = 8\text{cm}$ . Find the size of angle  $\widehat{AMN}$ . =  $57.4^\circ$



## 3D Trigonometry

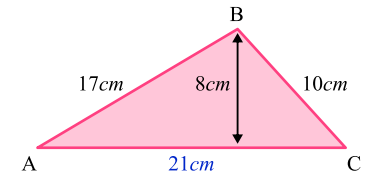
Pictured is a cuboid with  $AB = 2\text{cm}$ ,  $AD = AE = 4\text{cm}$ . Calculate:

- the length of CE =  $6\text{cm}$
- the angle of  $\widehat{ACE}$  =  $41.8^\circ$



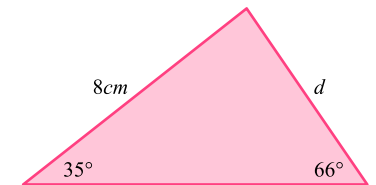
## Using Pythagoras' Theorem

Determine the length of AC. =  $21\text{cm}$



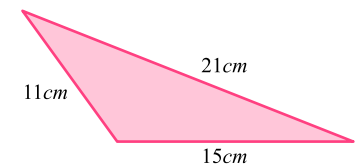
## Sine Rule

Work out the length of side  $d$ . =  $5.02\text{cm}$



## Cosine Rule

Calculate the size of the largest angle in this triangle. =  $106.7^\circ$



## Area of a triangle

Calculate the area of this triangle.

