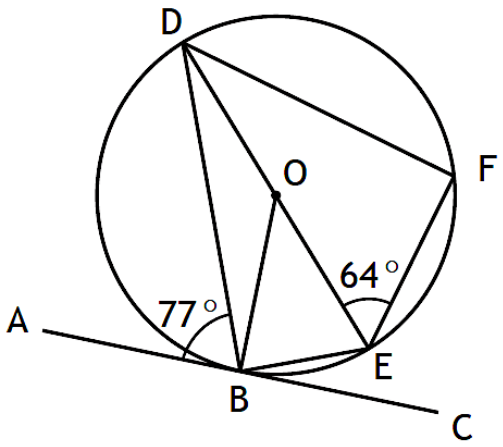
National 5 Mathematics

Properties of Shapes - Questions

Marks are indicated in brackets after each question number

2015 Paper 1 Question 3, (3)

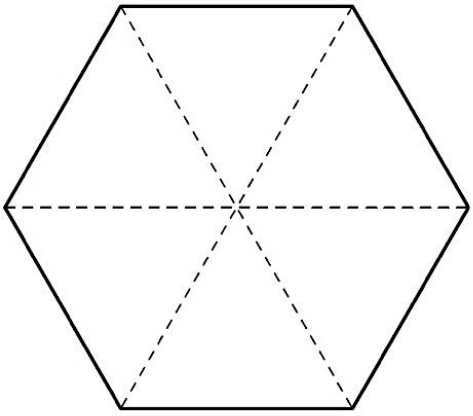


AC is a tangent to the circle, centre O, with point of contact B.
DE is a diameter of the circle and F is a point on the circumference.
Angle ABD is 77° and angle DEF is 64°.
Calculate the size of angle BDF.

2015 Paper 2 Question 11, (4)

The top of a table is in the shape of a regular hexagon.

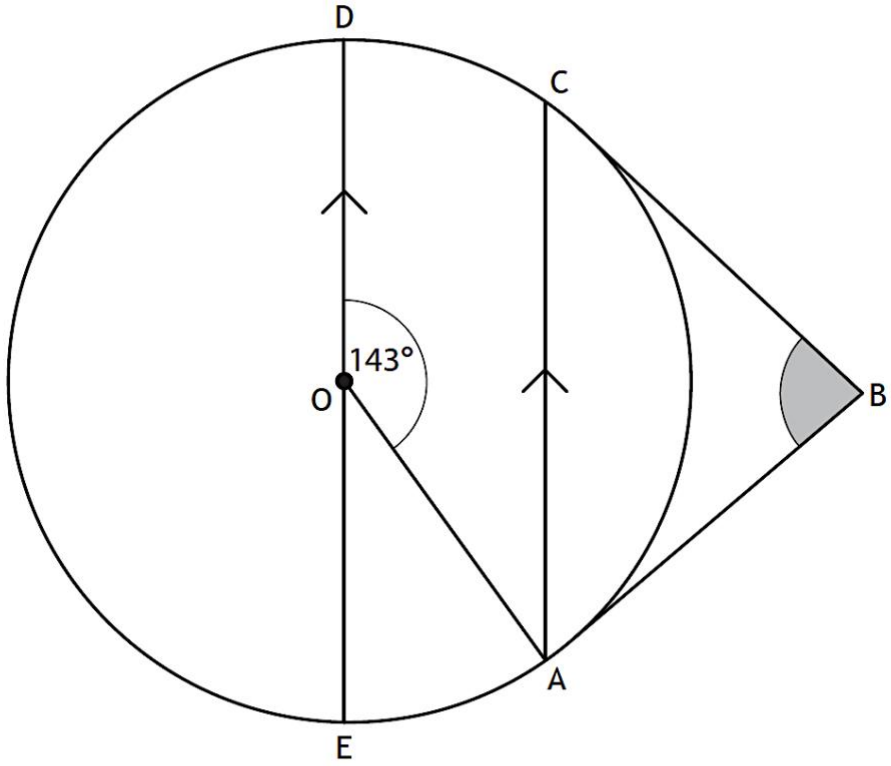
The three diagonals of the hexagon which are shown as dotted lines in the diagram below each have length 40 centimetres.



Calculate the area of the top of the table.

2016 Paper 2 Question 5, (3)

The diagram below shows a circle, centre O.



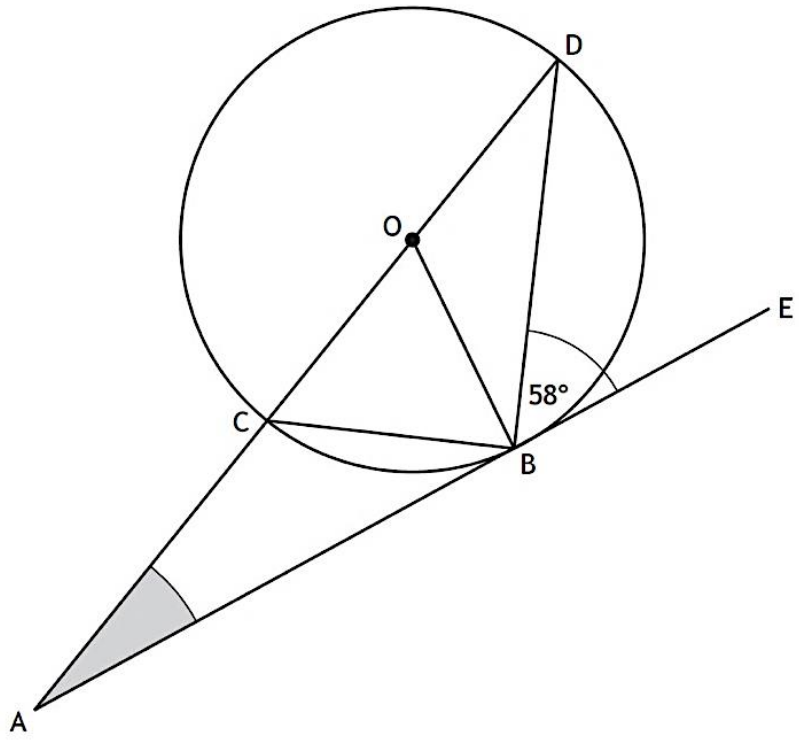
- AB and CB are tangents to the circle.
- AC and ED are parallel.
- Angle AOD is 143°.

Calculate the size of angle ABC.

2017 Paper 1 Question 9, (3)

In the diagram shown below:

- ABE is a tangent to the circle centre O
- Angle DBE is 58°

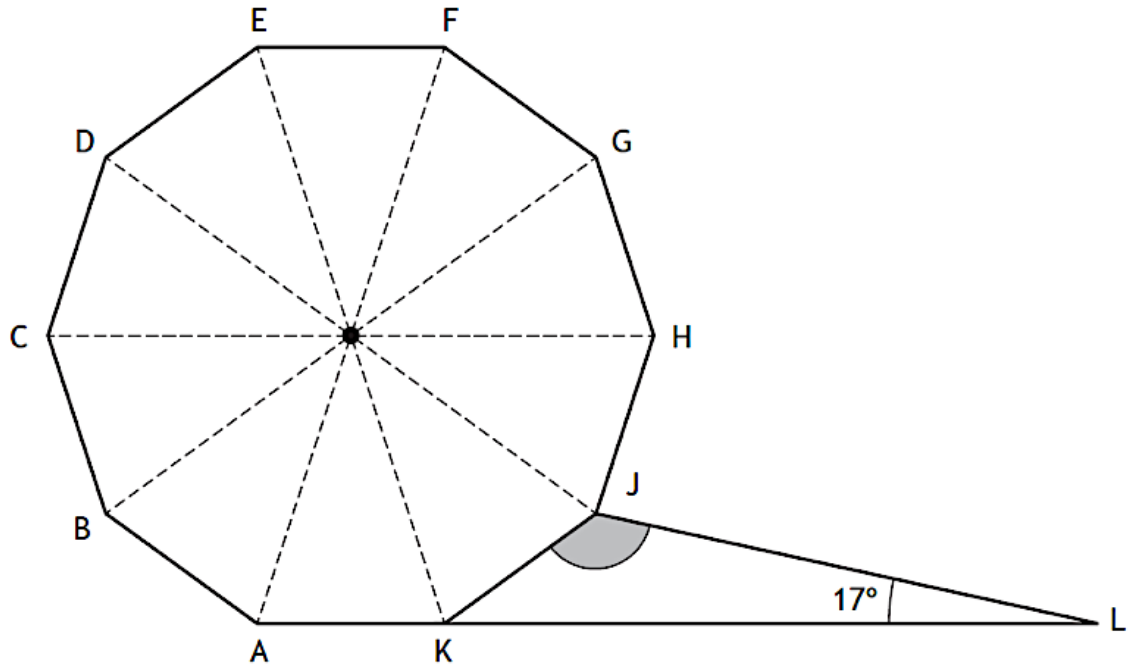


Calculate the size of angle CAB.

2018 Paper 1 Question 9, (3)

In the diagram shown below, ABCDEFGHJK is a regular decagon.

- Angle KLJ is 17°.
- AKL is a straight line.



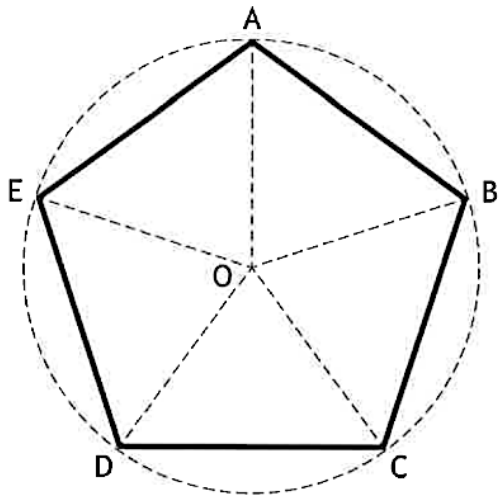
Calculate the size of shaded angle KJL.

2019 Paper 1 Question 11, (3)

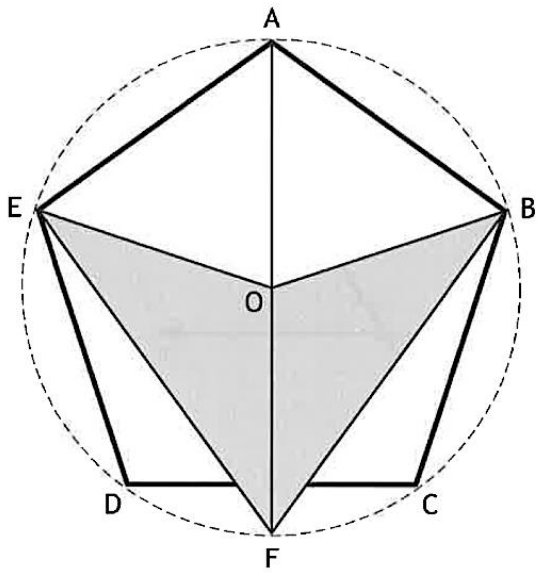
Pam is designing a company logo.

She starts by drawing a regular pentagon ABCDE.

The vertices of the pentagon lie on the circumference of a circle with centre O.



She then adds to the design as shown in the diagram below.

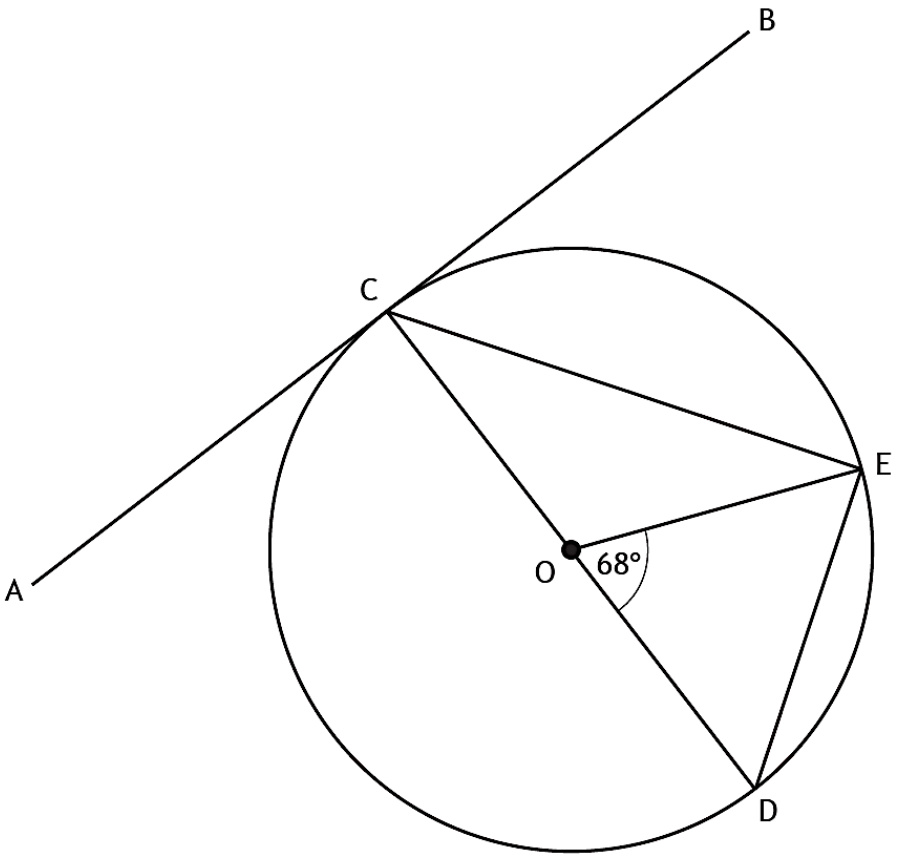


AF is a diameter of the circle.

Calculate the size of angle OFB.

2022 Paper 1 Question 4, (3)

The diagram below shows a circle with centre O.



AB is a tangent to the circle at the point C.

CD is a diameter of the circle.

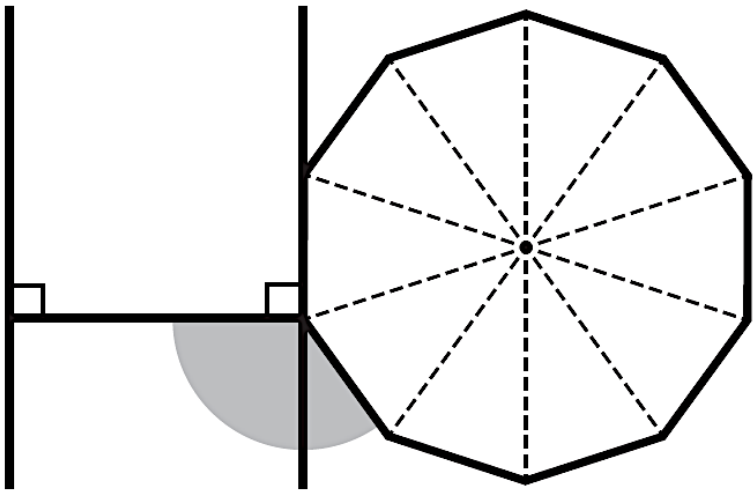
Angle EOD is 68°.

Calculate the size of angle ACE.

2023 Paper 2 Question 5, (2)

A logo consists of an H shape and a regular decagon.

The diagram represents the logo.

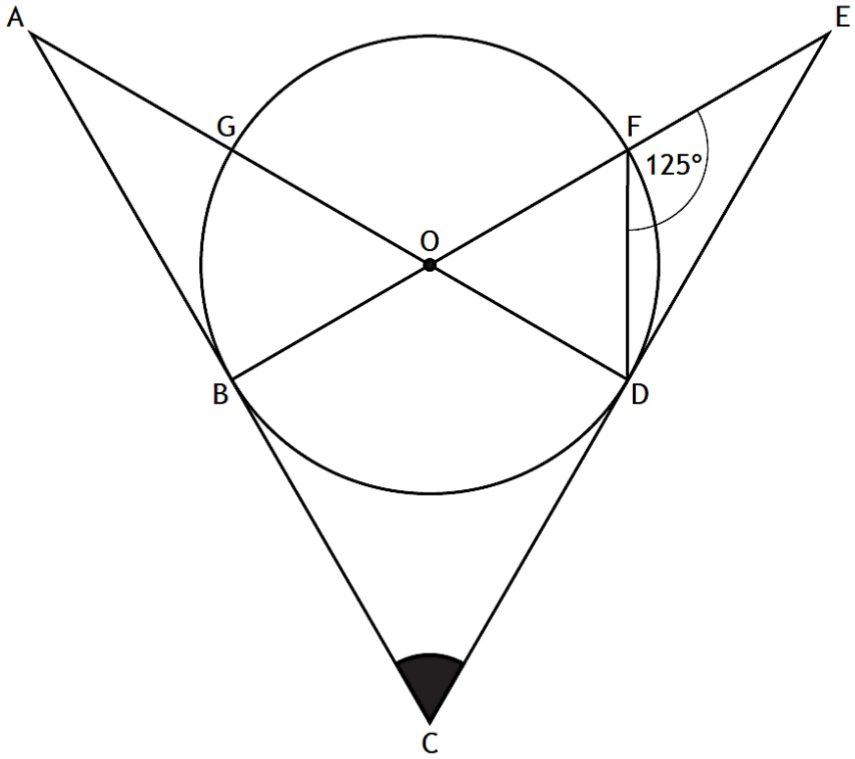


Calculate the size of the shaded angle.

2024 Paper 1 Question 10, (3)

The diagram below shows a circle centre O.

- AC is a tangent to the circle at the point B.
- CE is a tangent to the circle at the point D.
- DG and BF are diameters of the circle.
- Angle DFE is 125°.

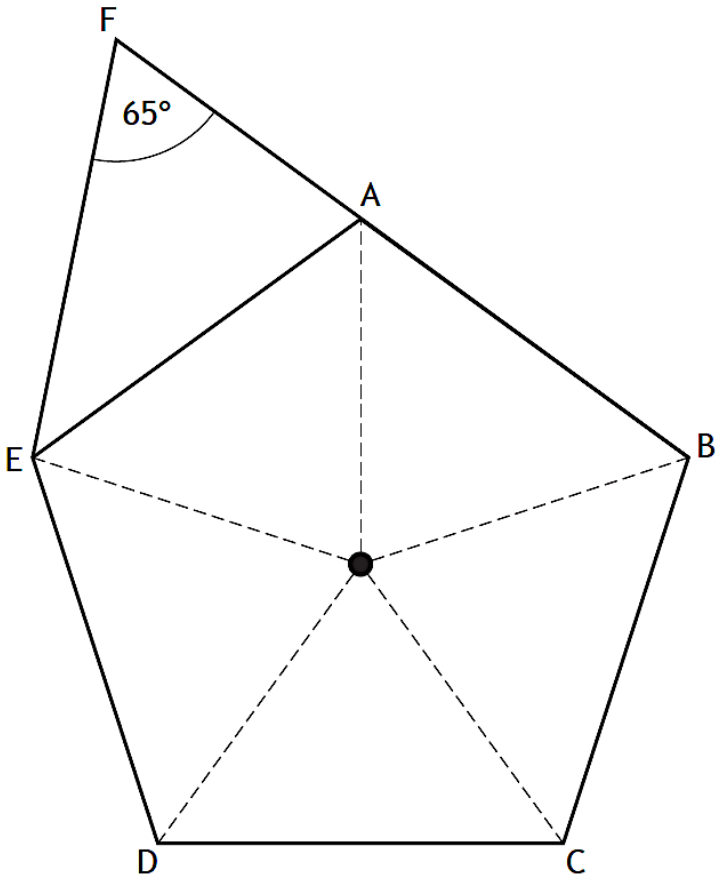


Calculate the size of shaded angle BCD.

2025 Paper 2 Question 7, (2)

In the diagram, ABCDE is a regular pentagon.

- Angle EFA is 65°.
- FAB is a straight line.



Calculate the size of angle FEA.