CIRCLE THEOREMS

Question 1

A, B, C and D are points on a circle with centre O

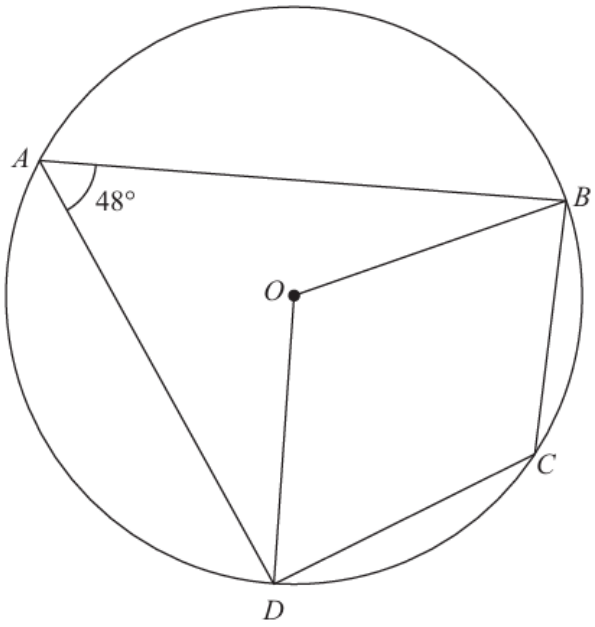


Diagram **NOT** accurately drawn

Angle $DAB = 48°$

(a) (i) Work out the size of the obtuse angle DOB

.....°

(1)

(ii) Give a reason for your answer.

.....

.....

.....

(1)

(b) (i) Work out the size of angle BCD

.....°

(1)

(ii) Give a reason for your answer.

.....

.....

(1)

Question 2

A, B, C and D are points on a circle, centre O

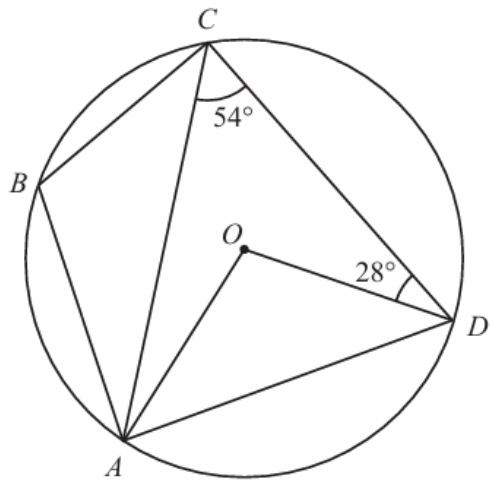


Diagram **NOT** accurately drawn

(a) (i) Work out the size of angle AOD

.....

(1)

(ii) Give a reason for your answer to part (a)(i)

.....

.....

(1)

(b) Work out the size of angle CAO

.....

(1)

(c) Work out the size of angle ABC

.....

(2)

Question 3

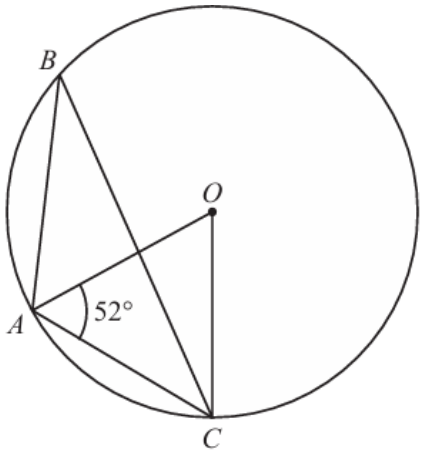


Diagram **NOT** accurately drawn

A, *B* and *C* are points on a circle, centre *O*

Angle *OAC* = 52°

Find the size of angle *ABC*
Give reasons for your working.

.....(3)

Question 4

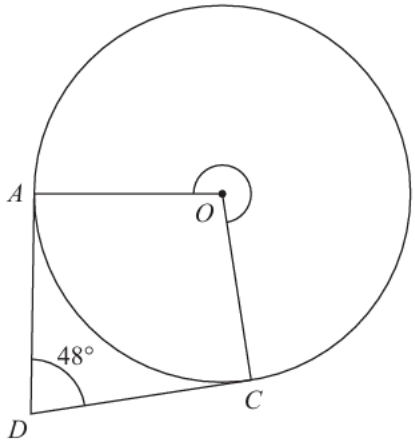


Diagram **NOT** accurately drawn

A and *C* are points on a circle, centre *O*
DA is the tangent to the circle at *A* and *DC* is the tangent to the circle at *C*

Angle *ADC* = 48°

Work out the size of reflex angle *AOC*

Question 5

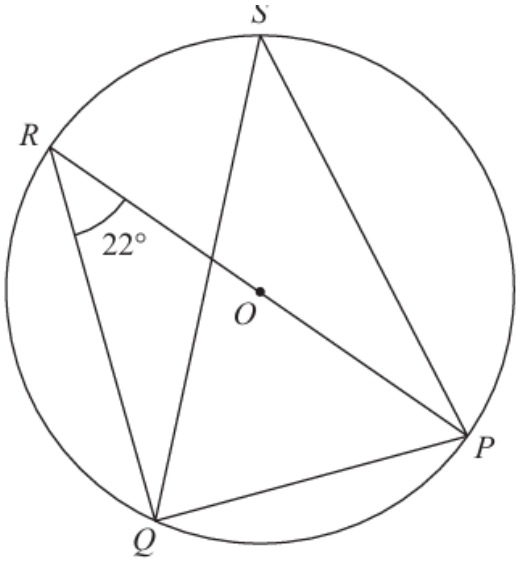


Diagram **NOT** accurately drawn

P, *Q*, *R* and *S* are points on a circle, centre *O*
ROP is a diameter of the circle.
Angle *PRQ* = 22°

(a) (i) Find the size of angle *RQP*

.....°

(1)

(ii) Give a reason for your answer.

.....

.....

(1)

(b) (i) Find the size of angle *PSQ*

.....°

(1)

(ii) Give a reason for your answer.

.....

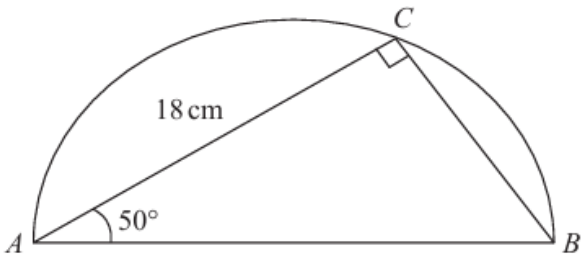
.....

(1)

Question 6

The diagram shows a triangle ABC inside a semicircle.

Diagram **NOT** accurately drawn



A, B and C are points on the semicircle.

AB is the diameter of the semicircle.

Angle $ACB = 90°$
Angle $BAC = 50°$
$AC = 18$ cm

Work out the perimeter of the semicircle.
Give your answer correct to 2 significant figures.

.....(4)

Question 7

A, B, C and D are points on a circle, centre O

EBF is the tangent to the circle at B

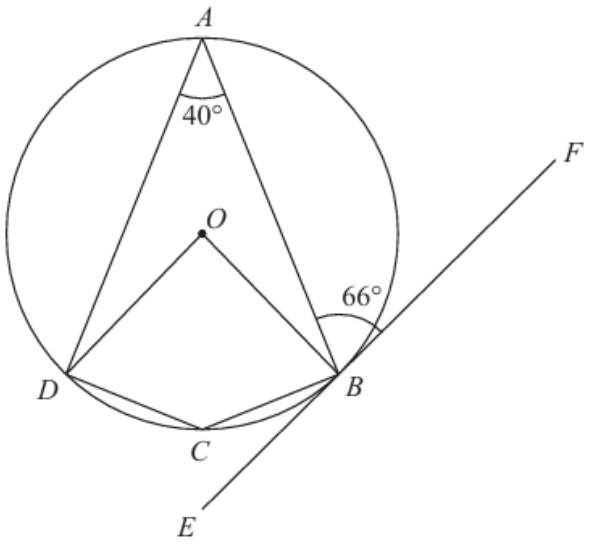


Diagram **NOT** accurately drawn

(a) (i) Work out the size of angle DCB

.....°

(1)

(ii) Give a reason for your answer to (a)(i)

.....

.....

(1)

(b) Work out the size of angle ADO

.....°

(3)

Question 8

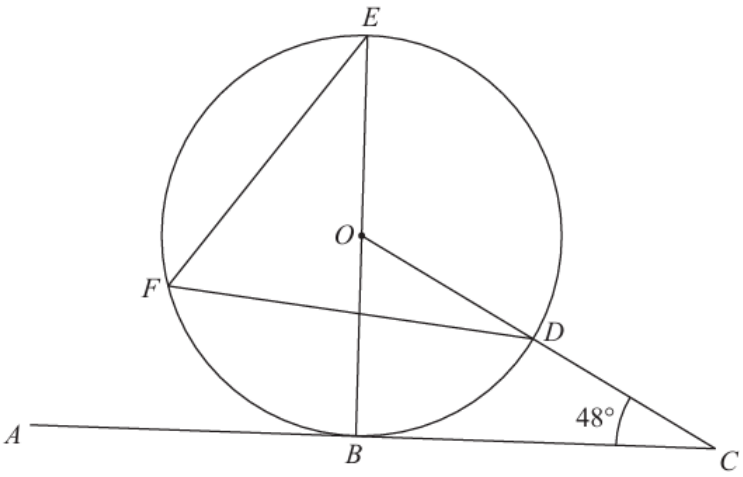


Diagram **NOT** accurately drawn

B, *D*, *E* and *F* are points on a circle, centre *O*.
ABC is a tangent to the circle.
ODC is a straight line.

BOE is a diameter of the circle.

Angle *BCD* = 48°

Find the size of angle *DFE*.

.....(3)

Question 9

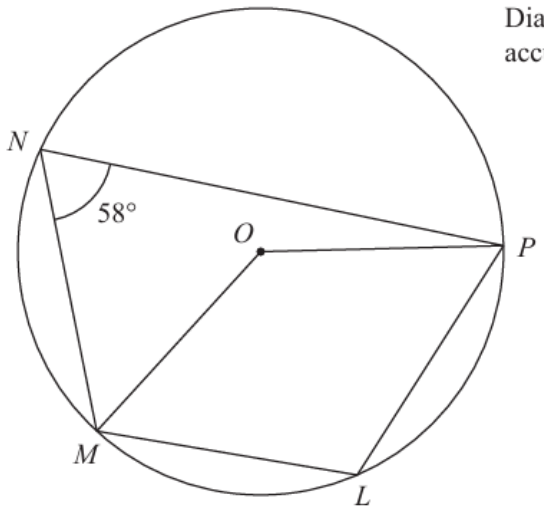


Diagram **NOT** accurately drawn

L, M, N and P are points on a circle, centre O

Angle $MNP = 58°$

(a) (i) Find the size of angle MLP

.....°

(ii) Give a reason for your answer.

.....

.....

(2)

(b) Find the size of the reflex angle MOP

.....°

(2)

Question 10

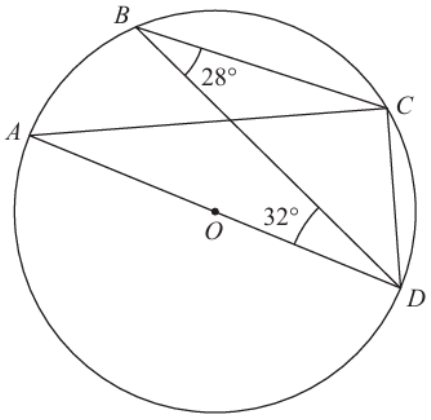


Diagram **NOT** accurately drawn

A, B, C and D are points on a circle, centre O.
AOD is a diameter of the circle.

Angle $CBD = 28°$
Angle $BDA = 32°$

Find the size of angle BDC.
Give a reason for each stage of your working.

.....(4)

Question 11

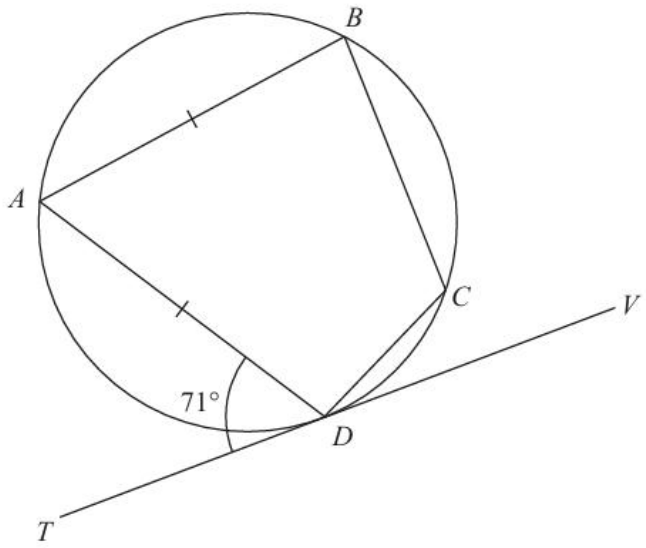


Diagram **NOT** accurately drawn

A, B, C and D are points on a circle.
TDV is the tangent to the circle at D.

$AB = AD$
Angle $ADT = 71°$

Work out the size of angle BCD.
Give a reason for each stage of your working.

.....(5)