1

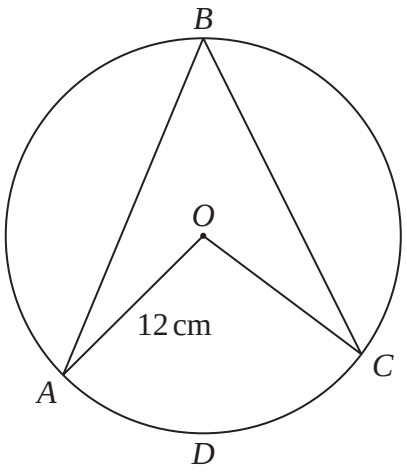

Diagram **NOT** accurately drawn

A, *B*, *C* and *D* are points on a circle with centre *O* and radius 12 cm.

The area of the sector *OADC* of the circle is 100 cm^2

Work out the size of angle *ABC*.
Give your answer correct to 3 significant figures.

..... °

(Total for Question 1 is 4 marks)

2 *A*, *B*, *D* and *E* are points on a circle.
ABC and *EDC* are straight lines.

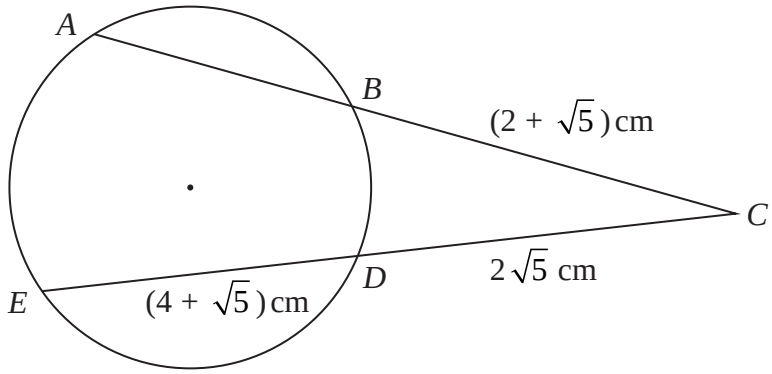

Diagram **NOT** accurately drawn

$BC = (2 + \sqrt{5})$ cm

$ED = (4 + \sqrt{5})$ cm

$DC = 2\sqrt{5}$ cm

Show that the length of *AB* is $(p\sqrt{5} + q)$ cm, where *p* and *q* are integers whose values are to be found.
Show your working clearly.

(Total for Question 2 is 5 marks)

3

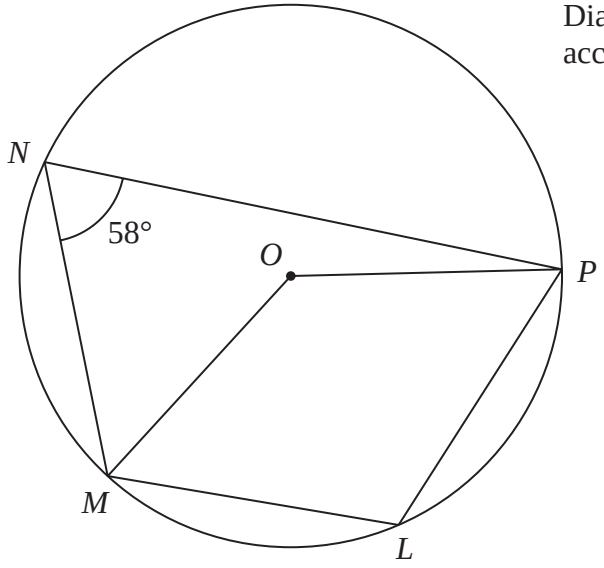

Diagram **NOT** accurately drawn

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)

(Total for Question 3 is 4 marks)

4

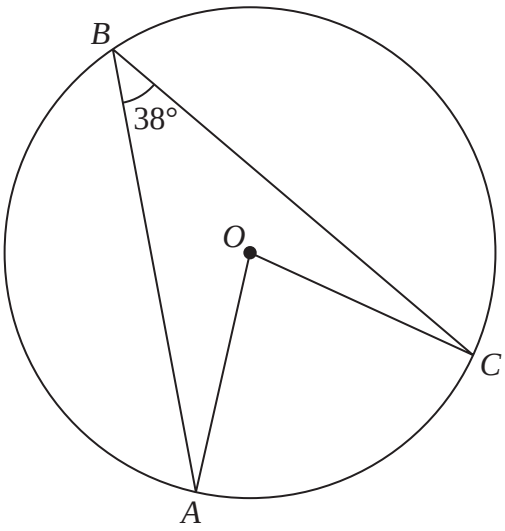

Diagram **NOT** accurately drawn

A, *B* and *C* are points on a circle, centre *O*.
Angle *ABC* = 38°

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

.....°

(Total for Question 4 is 4 marks)

5

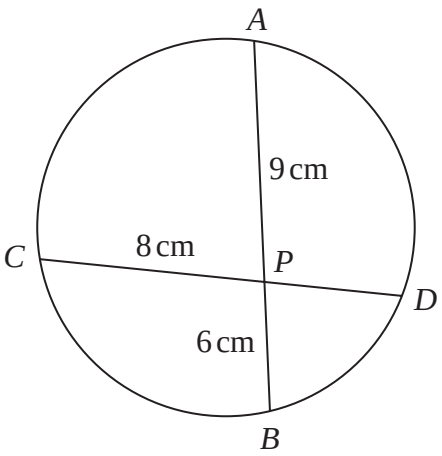

Diagram **NOT** accurately drawn

APB and *CPD* are chords of a circle.

AP = 9 cm *PB* = 6 cm *CP* = 8 cm

Calculate the length of *PD*.

..... cm

(Total for Question 5 is 2 marks)

6

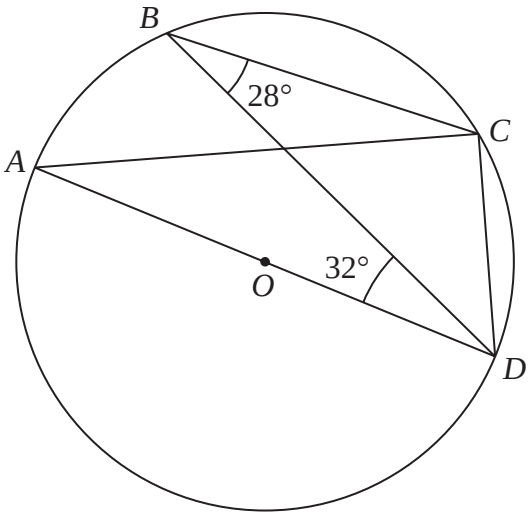

Diagram **NOT** accurately drawn

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.

.....°

(Total for Question 6 is 4 marks)

7 *P*, *Q* and *R* are points on a circle, centre *O*.
TRV is the tangent to the circle at *R*.

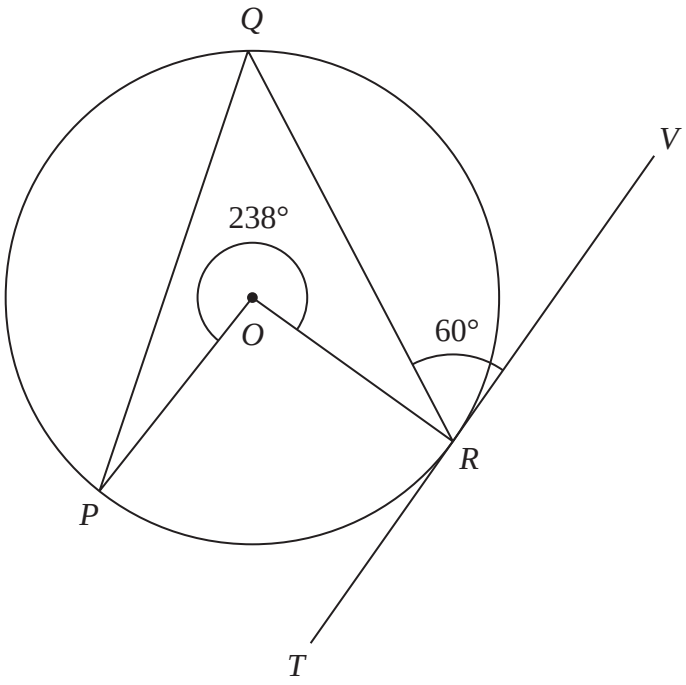

Diagram **NOT** accurately drawn

Reflex angle *POR* = 238°
Angle *QRV* = 60°

Calculate the size of angle *OPQ*.
Give a reason for each stage of your working.

.....°

(Total for Question 7 is 4 marks)

8

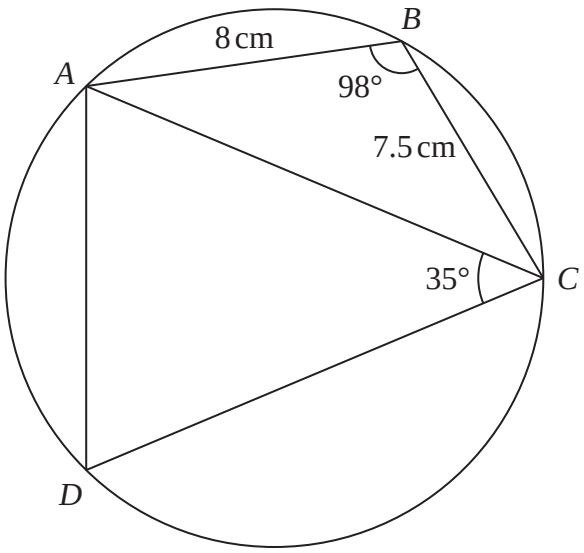

Diagram **NOT** accurately drawn

ABCD is a quadrilateral where *A*, *B*, *C* and *D* are points on a circle.

AB = 8 cm
BC = 7.5 cm
Angle *ABC* = 98°
Angle *ACD* = 35°

Work out the perimeter of quadrilateral *ABCD*.
Give your answer correct to one decimal place.

..... cm

(Total for Question 8 is 6 marks)

9

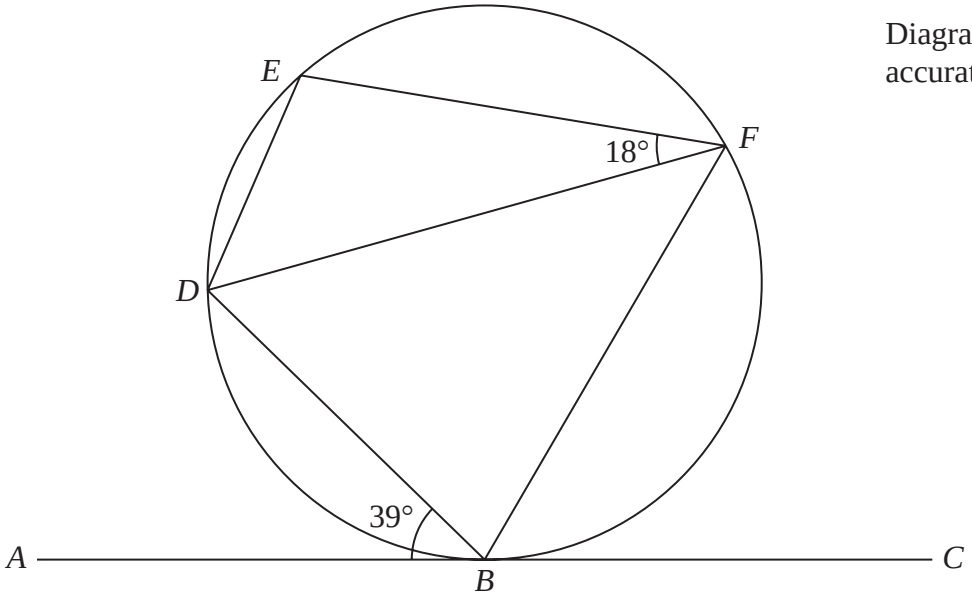

Diagram **NOT** accurately drawn

B, *D*, *E* and *F* are points on a circle.

ABC is the tangent at *B* to the circle.
Angle *ABD* = 39°
Angle *EFD* = 18°

Work out the size of angle *BDE*.
Give reasons for your working.

.....°

(Total for Question 9 is 4 marks)

10 *P*, *Q*, *R*, *S* and *T* are points on a circle with centre *O*.

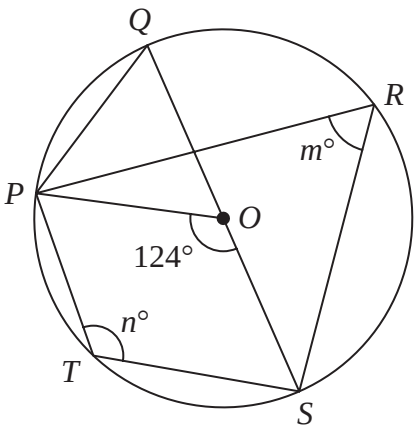

Diagram **NOT** accurately drawn

QOS is a diameter of the circle.

angle *POS* = 124° angle *PRS* = *m*° angle *PTS* = *n*°

(a) Find the value of

(i) *m*

.....

(ii) *n*

.....

(2)

(b) Find the size of angle *QPO*.

..... °

(1)

(Total for Question 10 is 3 marks)

11

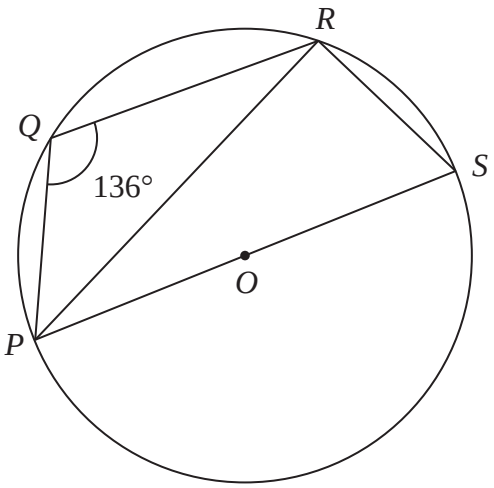

Diagram **NOT** accurately drawn

P, *Q*, *R* and *S* are points on a circle with centre *O*

PS is a diameter of the circle.

Angle *PQR* = 136°

Work out the size of angle *RPS*

.....°

(Total for Question 11 is 3 marks)

12

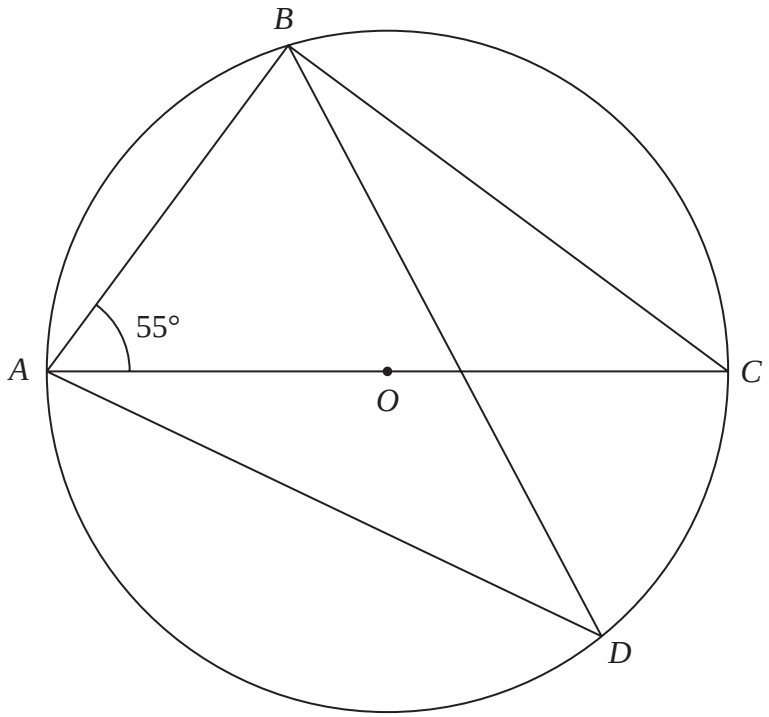

Diagram **NOT** accurately drawn

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

Angle *BAC* = 55°

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

.....°

.....

(Total for Question 12 is 4 marks)

13 *D*, *E*, *F* and *G* are points on a circle, centre *O*

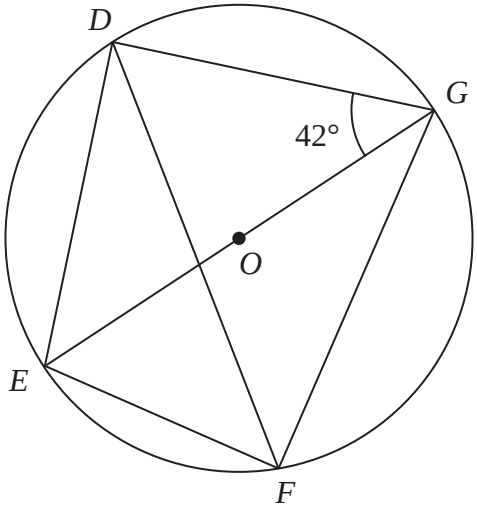

Diagram **NOT** accurately drawn

EOG is a diameter of the circle.

Angle *EGD* = 42°

Calculate the size of angle *DFG*
Give a reason for each stage of your working.

Angle *DFG* = ... °

(Total for Question 13 is 4 marks)

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

EBF is the tangent to the circle at *B*

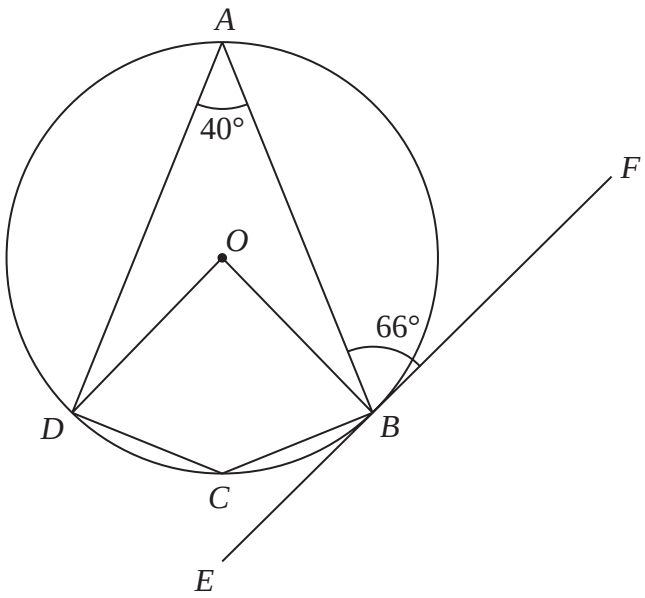

Diagram **NOT** accurately drawn

(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)

(Total for Question 14 is 5 marks)

15 *A*, *B* and *C* are points on a circle.

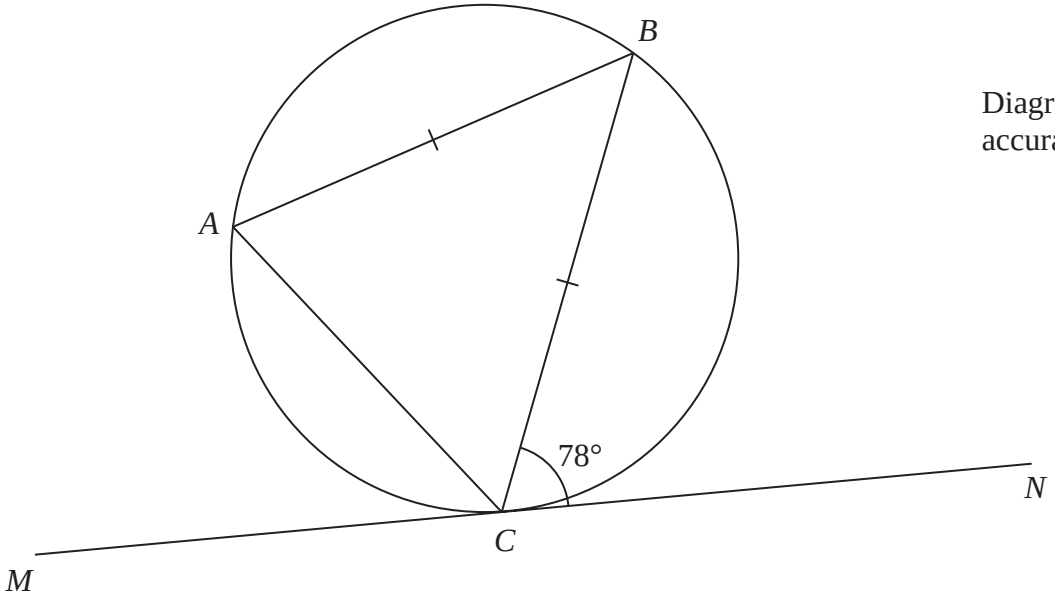

Diagram **NOT** accurately drawn

MN is the tangent to the circle at *C*

AB = *CB*

Angle *BCN* = 78°

Find the size of angle *ABC*

.....°

(Total for Question 15 is 2 marks)

16

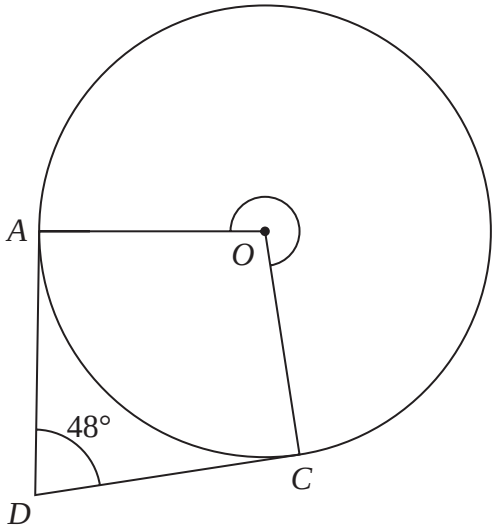

Diagram **NOT** accurately drawn

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*

..... °

(Total for Question 16 is 3 marks)

17

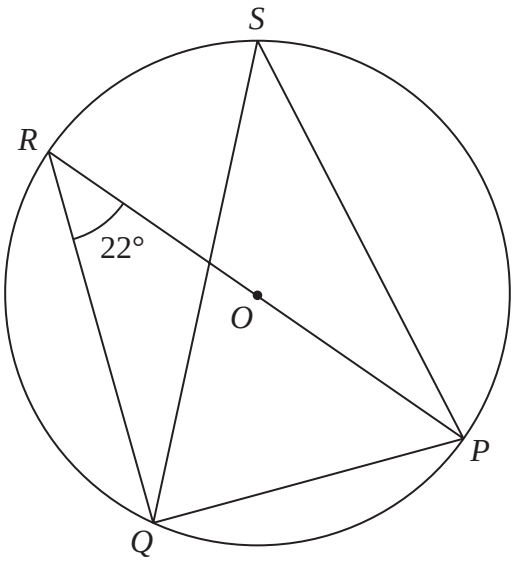

Diagram **NOT** accurately drawn

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)

(Total for Question 17 is 4 marks)