1

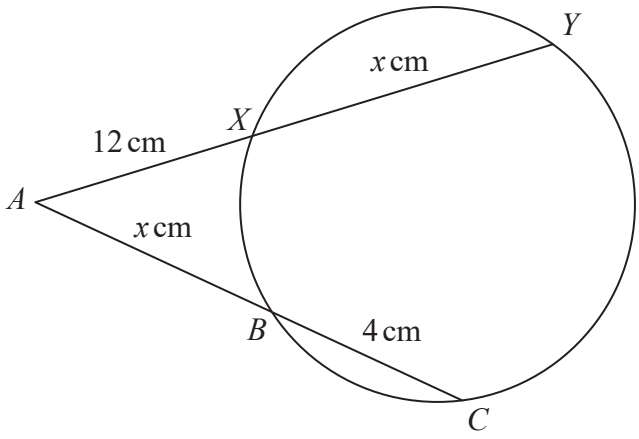

Diagram **NOT** accurately drawn

The points B, C, Y and X lie on a circle.

AXY and ABC are straight lines.

$AX = 12\,\text{cm}$ $XY = x\,\text{cm}$ $AB = x\,\text{cm}$ $BC = 4\,\text{cm}$

(a) Show that $x^2 - 8x - 144 = 0$

(3)

(b) Find the length of AC.
Show your working clearly.
Give your answer correct to 3 significant figures.

..... cm

(4)

(Total for Question 1 is 7 marks)

2

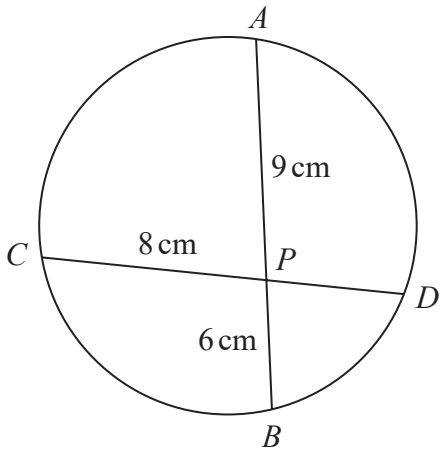

Diagram **NOT** accurately drawn

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 2 is 2 marks)

3

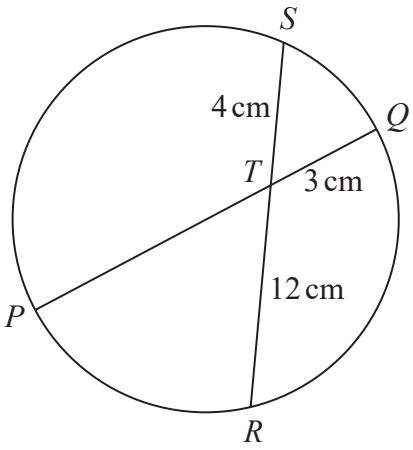

Diagram **NOT** accurately drawn

PTQ is a diameter of a circle.
RTS is a chord of the circle.

$TQ = 3\,\text{cm}$ $ST = 4\,\text{cm}$ $TR = 12\,\text{cm}$

Calculate the radius of the circle.

..... cm

(Total for Question 3 is 3 marks)

4 *AEC* and *BED* are chords of a circle.

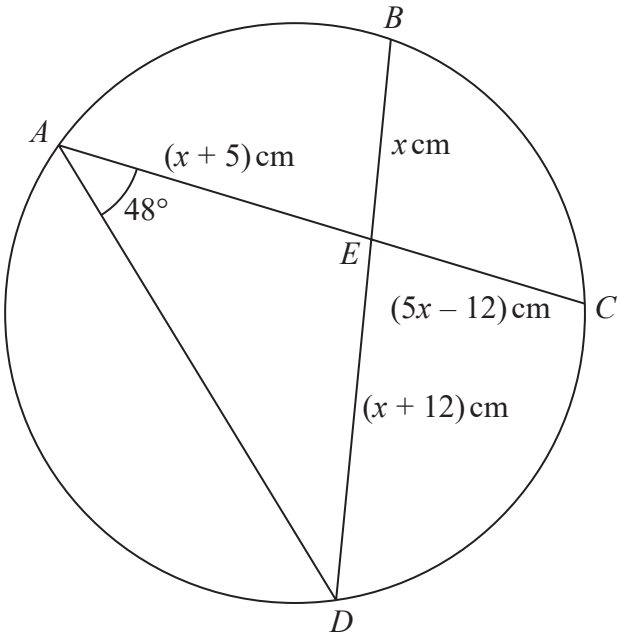

Diagram **NOT** accurately drawn

$AE = (x + 5)\,\text{cm}$ $BE = x\,\text{cm}$ $CE = (5x - 12)\,\text{cm}$ $DE = (x + 12)\,\text{cm}$

Angle $DAE = 48°$

Work out the size of angle *ADE*
Give your answer correct to one decimal place.

°

.....

(Total for Question 4 is 5 marks)

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

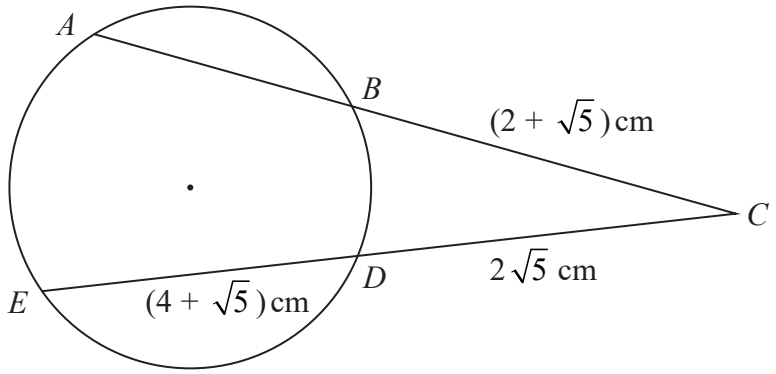

Diagram **NOT** accurately drawn

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

6

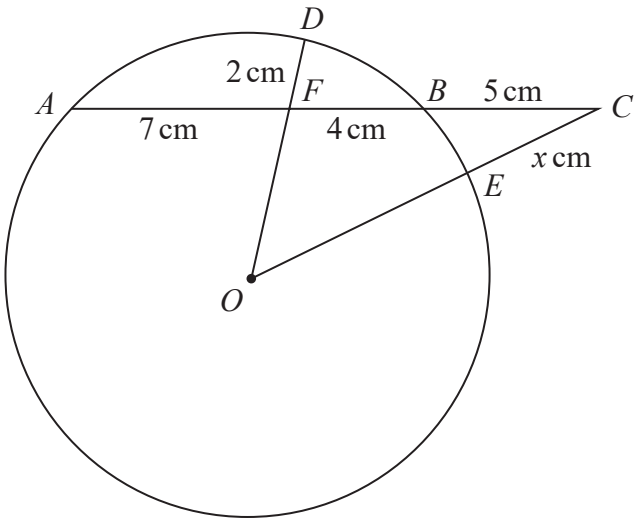

Diagram **NOT** accurately drawn

A, *D*, *B* and *E* are points on a circle, centre *O*.
AFBC, *OEC* and *OFD* are straight lines.

AF = 7 cm, *FB* = 4 cm, *BC* = 5 cm, *FD* = 2 cm and *CE* = *x* cm.

Work out the value of *x*.
Show your working clearly.

x = ...

(Total for Question 6 is 6 marks)