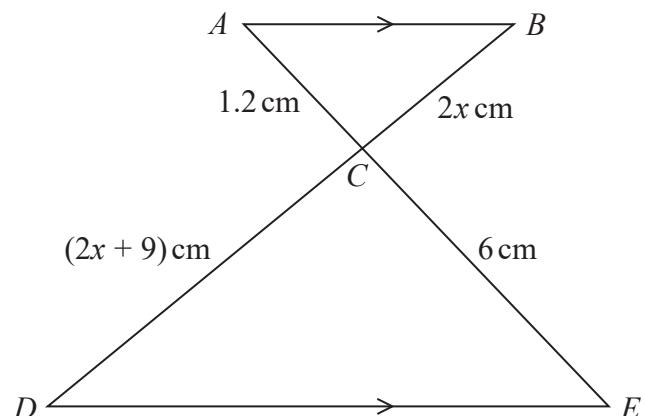


12**Diagram NOT
accurately drawn**

ACE and BCD are straight lines.

AB is parallel to DE

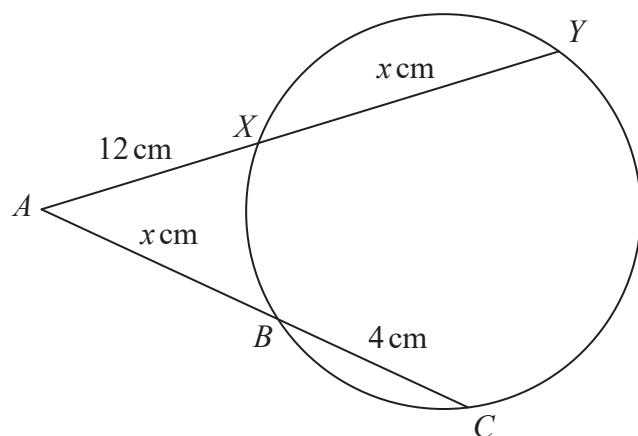
Work out the value of x

$x = \dots$

(Total for Question 12 is 3 marks)



16

Diagram NOT
accurately drawn

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

AXY and ABC are straight lines.

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

(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 16 is 7 marks)



19

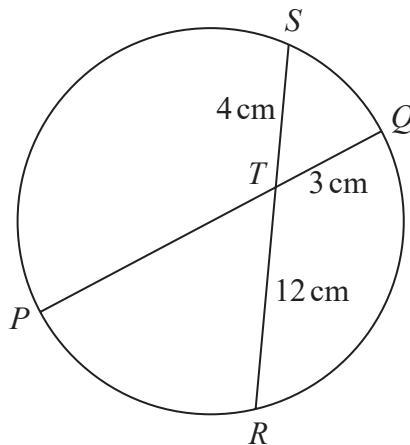


Diagram NOT
accurately drawn

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 19 is 3 marks)



P 6 9 2 0 3 A 0 2 1 2 8

18

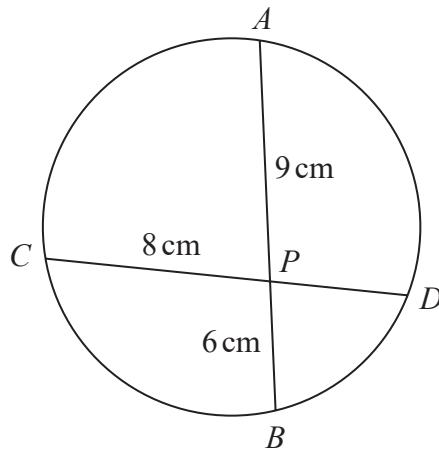


Diagram **NOT**
accurately drawn

APB and CPD are chords of a circle.

$$AP = 9 \text{ cm} \quad PB = 6 \text{ cm} \quad CP = 8 \text{ cm}$$

Calculate the length of PD .

..... cm

(Total for Question 18 is 2 marks)

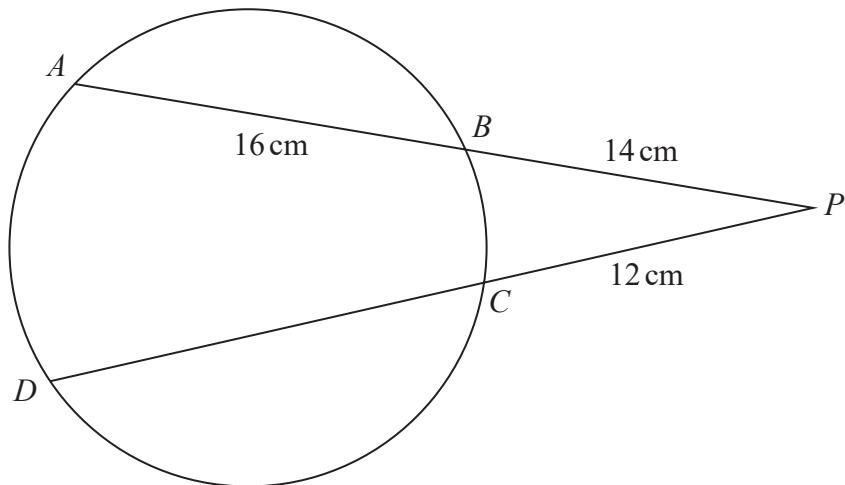


P 5 9 8 1 7 R A 0 1 9 2 8

19

Turn over ►

18



A, B, C and D are points on a circle.

ABP and DCP are straight lines.

$$AB = 16 \text{ cm}$$

$$BP = 14 \text{ cm}$$

$$CP = 12 \text{ cm}$$

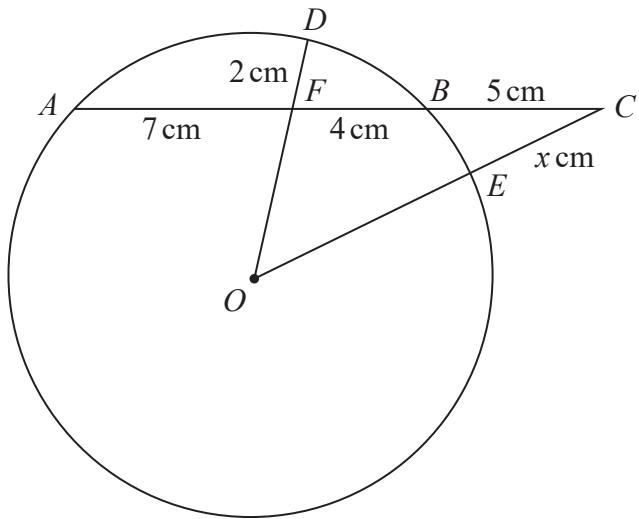
Work out the length of DC

..... cm

(Total for Question 18 is 3 marks)



22

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.

$x = \dots$

(Total for Question 22 is 6 marks)



22 ABC is an isosceles triangle in a horizontal plane.
The point T is vertically above B .

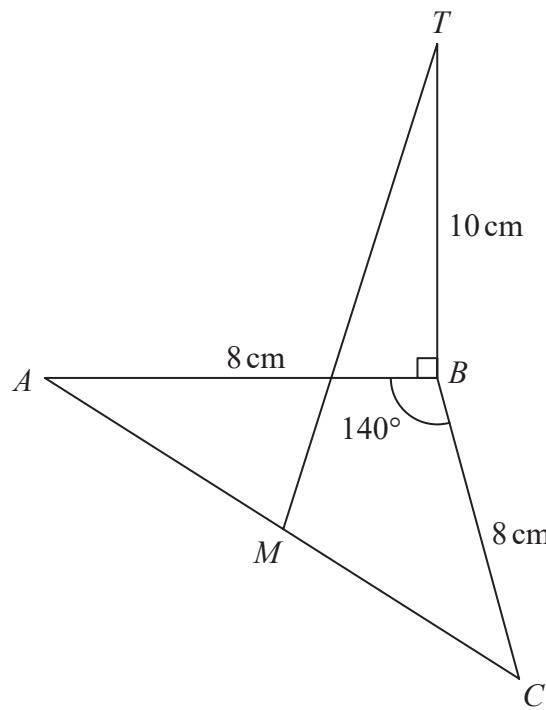


Diagram NOT
accurately drawn

Angle $ABC = 140^\circ$

$AB = BC = 8 \text{ cm}$

$TB = 10 \text{ cm}$

M is the midpoint of AC .

Calculate the size of the angle between MT and the horizontal plane ABC .
Give your answer correct to one decimal place.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 22 is 4 marks)



23 AEC and BED are chords of a circle.

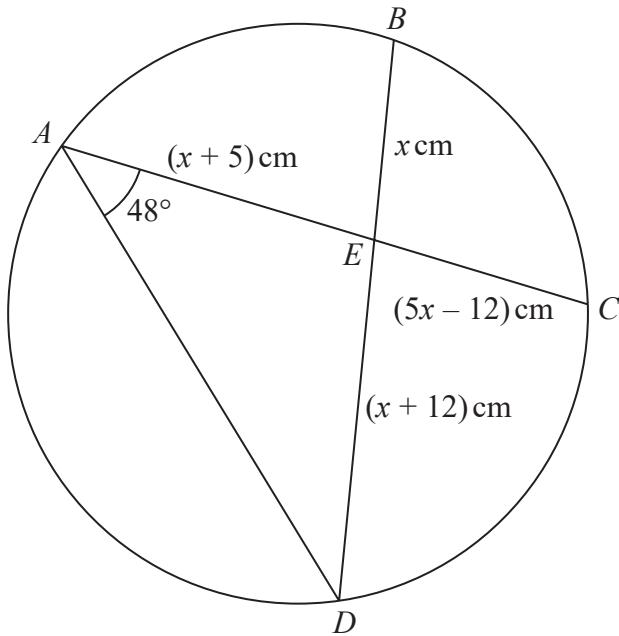


Diagram **NOT**
accurately drawn

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

$$\text{Angle } DAE = 48^\circ$$

Work out the size of angle ADE

Give your answer correct to one decimal place.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 23 is 5 marks)



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

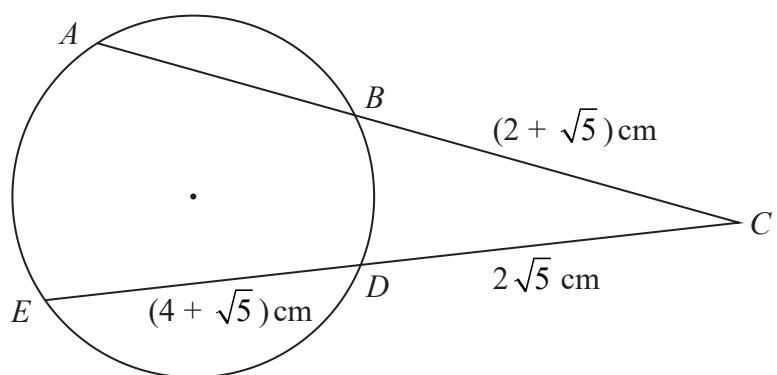


Diagram **NOT**
accurately drawn

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

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

$$DC = 2\sqrt{5} \text{ cm}$$

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 26 is 5 marks)

