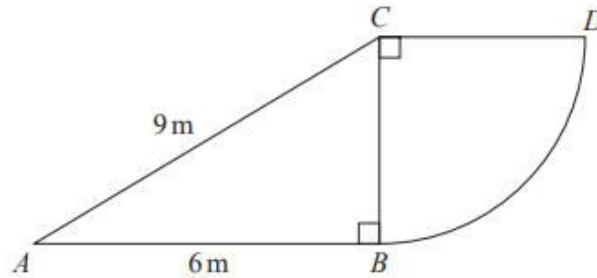


AREA AND CIRCUMFERENCE OF CIRCLES

Pearson Edexcel - Thursday 4 June 2020 - Paper 2 (Calculator) Foundation Tier

1.

27 The diagram shows a right-angled triangle and a quarter circle.



The right-angled triangle  $ABC$  has angle  $ABC = 90^\circ$   
The quarter circle has centre  $C$  and radius  $CB$ .

Work out the area of the quarter circle.  
Give your answer correct to 3 significant figures.  
You must show all your working.

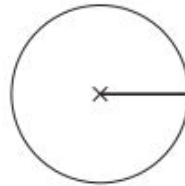
..... m<sup>2</sup>

(Total for Question 27 is 4 marks)

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2.

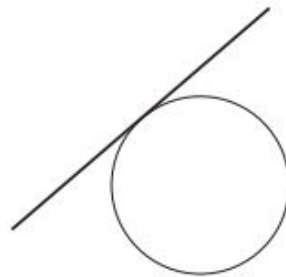
9 The centre of this circle is marked with a cross (×).



(a) Write down the mathematical name of the straight line shown in the circle.

.....  
(1)

(b) Write down the mathematical name of the straight line that is touching the circle.



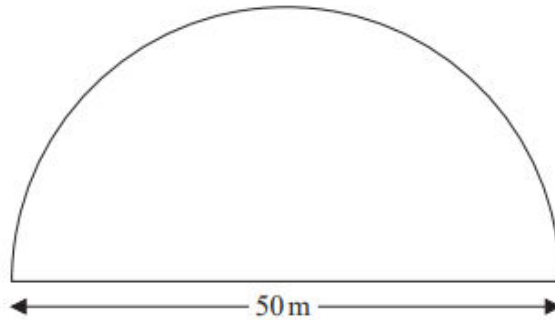
.....  
(1)

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**(Total for Question 9 is 2 marks)**

3.

19 A farmer has a field in the shape of a semicircle of diameter 50 m.



The farmer asks Jim to build a fence around the edge of the field.  
Jim tells him how much it will cost.

Total cost = £29.86 per metre of fence plus £180 for each day's work

Jim takes three days to build the fence.

Work out the total cost.

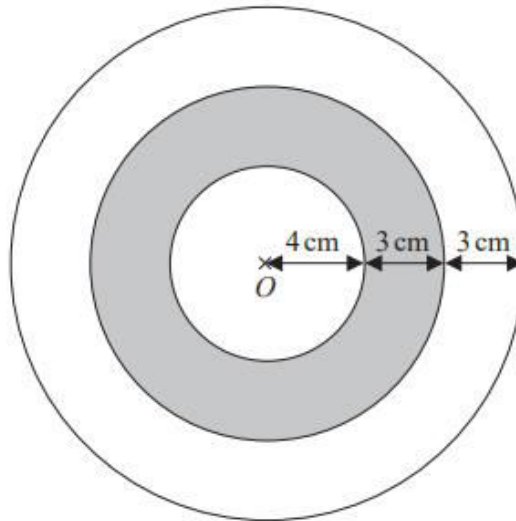
£.....

(Total for Question 19 is 5 marks)

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4.

26 The diagram shows a logo made from three circles.



Each circle has centre  $O$ .

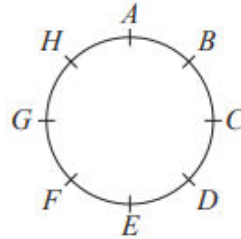
Daisy says that exactly  $\frac{1}{3}$  of the logo is shaded.

Is Daisy correct?

You must show all your working.

5.

**18** Hasmeet walks once round a circle with diameter 80 metres.

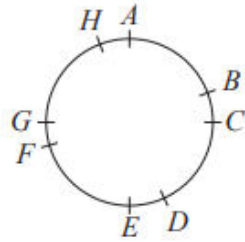


There are 8 points equally spaced on the circumference of the circle.

(a) Find the distance Hasmeet walks between one point and the next point.

.....m  
(2)

Four of the points are moved, as shown in the diagram below.



Hasmeet walks once round the circle again.

- (b) Has the mean distance that Hasmeet walks between one point and the next point changed?  
You must give a reason for your answer.

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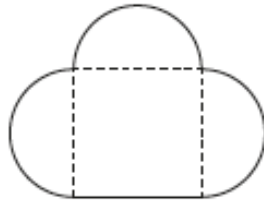
(1)

**(Total for Question 18 is 3 marks)**

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6.

- 25 The diagram shows Jane's lawn.  
It is in the shape of a square of side 36 m and three semi-circles.



Not to scale

She is going to spread fertiliser on the lawn at a rate of 30g per square metre.  
The fertiliser is only sold in 10kg bags costing £15.80 each.

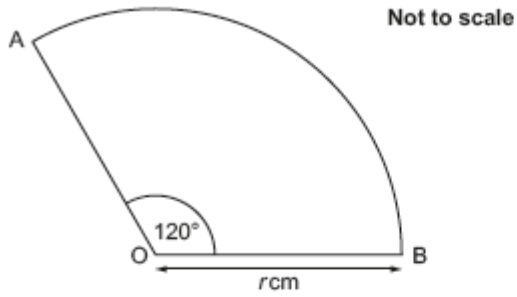
Calculate the cost of buying the bags of fertiliser for her lawn.  
You must show all your working.

£ ..... [6]

OCR Thursday 05 November 2020- Morning (Non-Calculator) Foundation Tier

7.

23 AOB is a sector of a circle, centre O.



The area of the sector is  $8 \text{ cm}^2$ .

Work out the exact value of the radius,  $r$  cm.

$r = \dots\dots\dots$  cm [4]



**OCR Monday 11 November 2019 – Afternoon (Calculator) Foundation Tier**

8.

4 A circle has radius 5 cm.

(a) Work out the circumference of the circle.

(a) ..... cm [2]

(b) Work out the area of the circle.

(b) ..... cm<sup>2</sup> [2]

**OCR Tuesday 21 May 2019 – Morning (Calculator) Foundation Tier**

9.

13 Calculate the area of a circle with radius 14 cm.

..... cm<sup>2</sup> [2]

**OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier**

10.

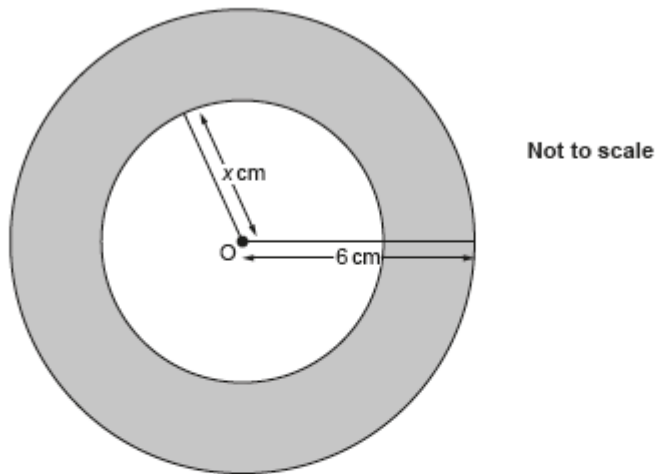
13 Calculate the circumference of a circle with diameter 10 cm.

..... cm [2]

**OCR Thursday 8 November 2018 – Morning (Non-Calculator) Foundation Tier**

11.

21 A circle, with centre O and radius 6 cm, contains another circle, with centre O and radius  $x$  cm.



Write down an expression, in terms of  $\pi$  and  $x$ , for the shaded area in  $\text{cm}^2$ .

..... [2]

OCR Monday 24 May 2018 – Morning (Calculator) Foundation Tier

12.

12 A circle has radius 6 cm.

Calculate its circumference.

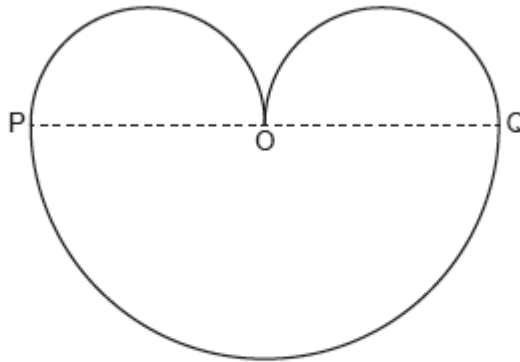
Give your answer in centimetres, correct to 1 decimal place.

..... cm [3]

OCR Thursday 7 June 2018 – Morning (Non Calculator) Foundation Tier

13.

21 This shape consists of three semicircles.



$OP = OQ$ .

The length of  $PQ$  is  $4x$  cm.

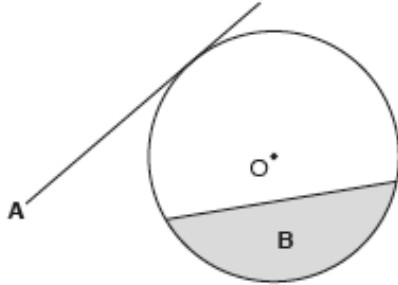
Show that the area, in  $\text{cm}^2$ , of the whole shape is  $3\pi x^2$ .

[5]

OCR Monday 6 November 2017– Morning (Calculator) Foundation Tier

14.

15 The diagram shows a circle, centre O.



Write down the mathematical name of

(a) line A,

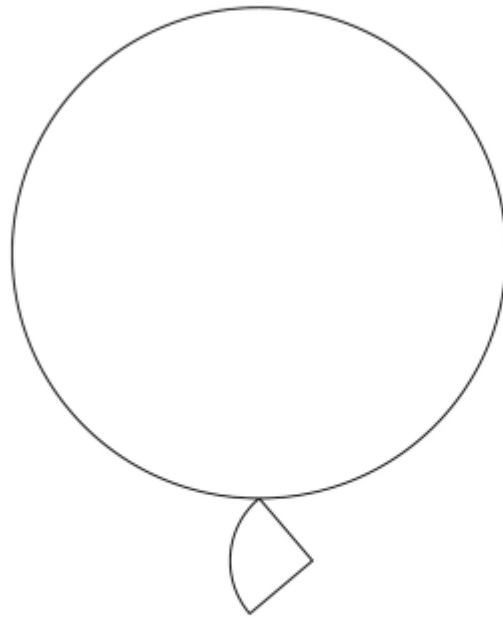
(a) ..... [1]

(b) shaded region B.

(b) ..... [1]

15.

- 26** Two wire shapes make an earring.  
The shapes are  
a circle with radius 21 mm  
and  
a quarter circle.



Not drawn  
accurately

radius of circle : radius of quarter circle = 7 : 2

- 26 (a)** Show that the radius of the quarter circle is 6 mm

**[1 mark]**

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**26 (b)** Work out the **total** length of the wire in the earring.

Give your answer in the form  $a\pi + b$  where  $a$  and  $b$  are integers.

**[4 marks]**

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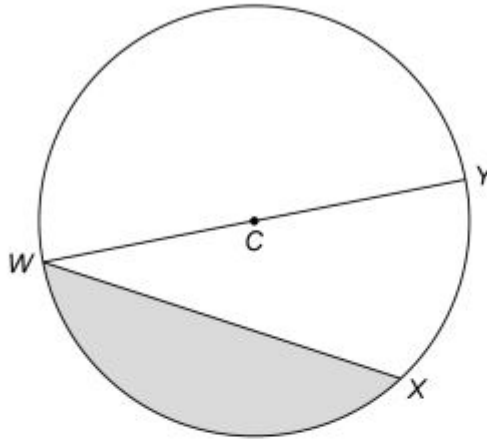
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Answer \_\_\_\_\_ mm

16.

- 14** This circle has centre  $C$ .  
 $W$ ,  $X$  and  $Y$  are points on the circle.  
 $WY$  is a straight line.



Tick **one** box for each statement.

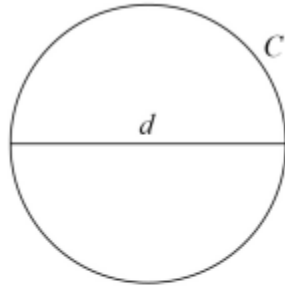
**[3 marks]**

	<b>True</b>	<b>False</b>
$WY$ is a diameter.	<input type="checkbox"/>	<input type="checkbox"/>
$WX$ is a radius.	<input type="checkbox"/>	<input type="checkbox"/>
The shaded section is a sector.	<input type="checkbox"/>	<input type="checkbox"/>
Arc $XY$ is part of the circumference.	<input type="checkbox"/>	<input type="checkbox"/>

AQA Thursday 8 November 2018 – Morning (Calculator) Foundation Tier

17.

17 A circle has circumference  $C$  and diameter  $d$ .



$$C = kd$$

What **value** does the constant  $k$  represent?

[1 mark]

Answer \_\_\_\_\_



AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

18.

**21 (a)** A circle has radius 4.2 cm

Work out the length of the circumference.

Give your answer to 1 decimal place.

**[3 marks]**

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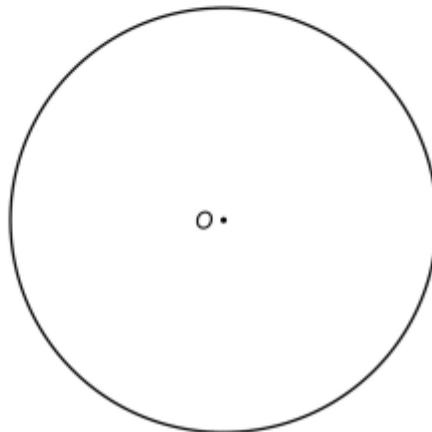
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Answer \_\_\_\_\_ cm

**21 (b)** The circle below has centre  $O$ .

Draw a sector on the circle.

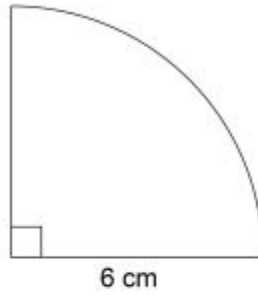
**[1 mark]**



AQA Thursday 2 November 2017 – Morning (Non-Calculator) Foundation Tier

19.

27 Here is a quarter circle of radius 6 cm



Not drawn accurately

Work out the area of the quarter circle.

Give your answer in terms of  $\pi$ .

[2 marks]

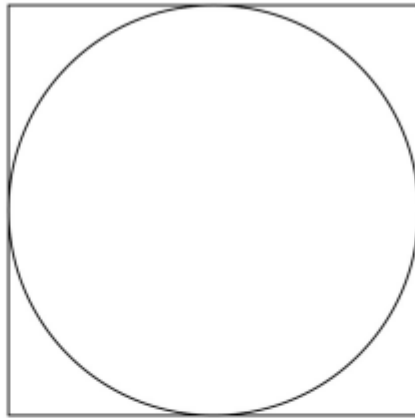
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Answer \_\_\_\_\_  $\text{cm}^2$

20.

**20** Here is a circle touching a square.



Not drawn  
accurately

The area of the square is  $64 \text{ cm}^2$

Work out the area of the circle.

Give your answer in terms of  $\pi$ .

**[3 marks]**

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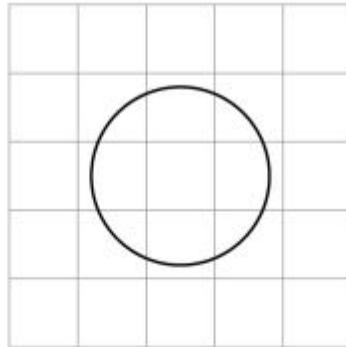
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Answer \_\_\_\_\_  $\text{cm}^2$

21.

**13** A circle is drawn on a centimetre grid.



**13 (a)** Draw a tangent to the circle.

[1 mark]

**13 (b)** Grace works out that the area of the circle is more than  $9 \text{ cm}^2$

Why must this be wrong?

[1 mark]

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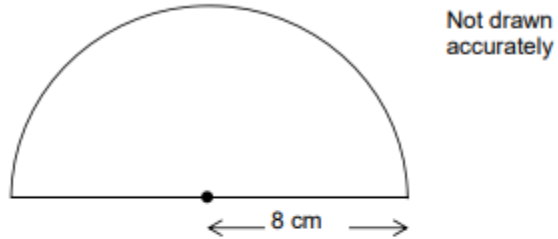
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AQA Sample Paper 1– Morning (Non-Calculator) Foundation Tier

22.

24 The diagram shows a semicircle of radius 8 cm



Work out the area of the semicircle.

Give your answer in terms of  $\pi$ .

[2 marks]

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Answer \_\_\_\_\_  $\text{cm}^2$