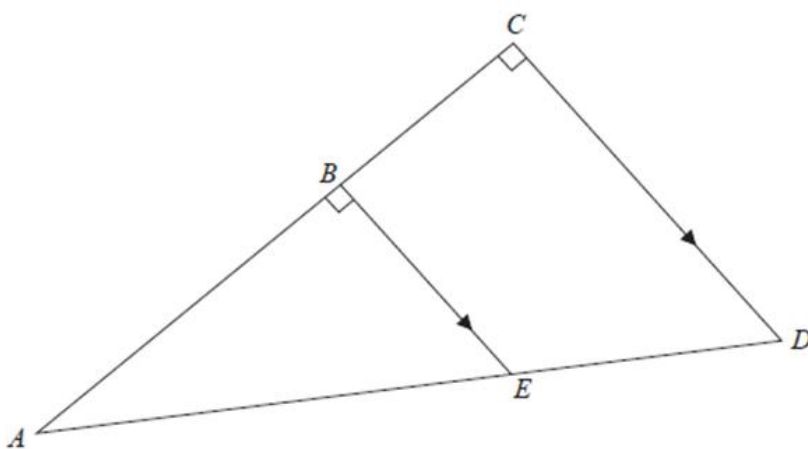




**QUESTION 1**

$ABC$  and  $AED$  are straight lines.  
 $BE$  and  $CD$  are parallel.



$BE = 4.2$  m  
 $CD = 10.5$  m  
 $AC = 27$  m

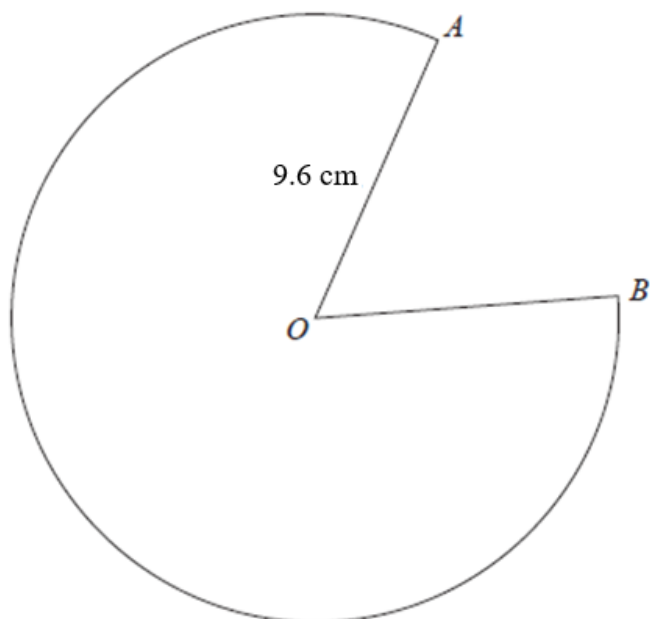
Work out the area of trapezium  $BCDE$ .

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

**(3 marks)**

**QUESTION 2**

$OAB$  is a sector of a circle with centre  $O$  and radius 9.6 cm.



The sector has a perimeter of 71 cm.

Find the size of the reflex angle  $AOB$ .

Give your answer correct to the nearest degree.

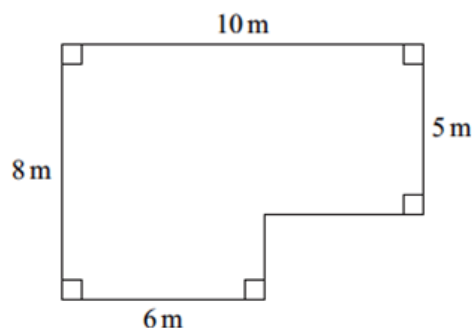
.....°

**(3 marks)**

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### QUESTION 3

The diagram shows a plan of a floor.



Peter is going to cover the floor with paint.

Peter has 4 tins of paint.

There are 1.5 litres of paint in each tin.

Peter thinks 1 litre of paint will cover  $10 \text{ m}^2$  of floor.

- (a) Assuming Peter is correct, does he have enough paint to cover the floor?  
You must show all your working.

(4)

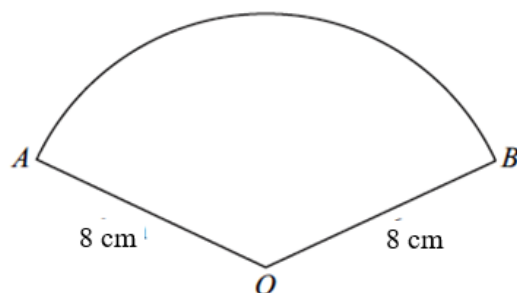
Actually, 1 litre of paint will cover  $12 \text{ m}^2$  of floor.

- (b) Does this affect your answer to part (a)?  
You must give a reason for your answer.

.....  
(1)

**QUESTION 4**

$OAB$  is a sector of a circle with centre  $O$  and radius 8 cm.



The length of the arc  $AB$  is  $6\pi$  cm.

Work out, in terms of  $\pi$ , the area of the sector.  
Give your answer in its simplest form.

|

..... cm<sup>2</sup>

**(4 marks)**

**Question 5**

The area of a circle is  $36\pi$  cm.

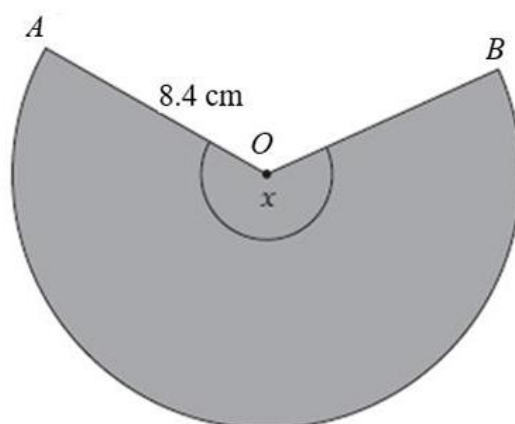
Work out the circumference of the circle.  
Give your answer in terms of  $\pi$ .

..... cm<sup>2</sup>

**(3 marks)**

### Question 6

The diagram shows a shaded sector  $AOB$  of a circle with centre  $O$  and radius 8.4 cm.



The area of the shaded sector is  $154.6 \text{ cm}^2$

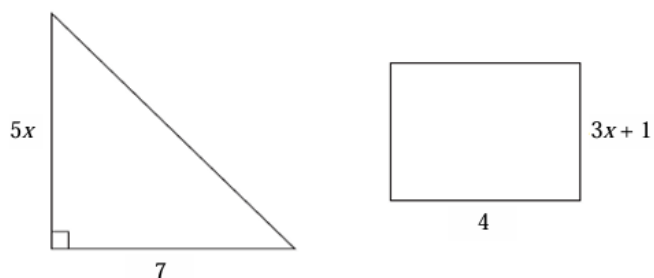
Calculate the size of angle  $x$ .

Give your answer correct to 3 significant figures.

.....(3)

### Question 7

Here is a triangle and a rectangle.



All measurements are in centimetres.

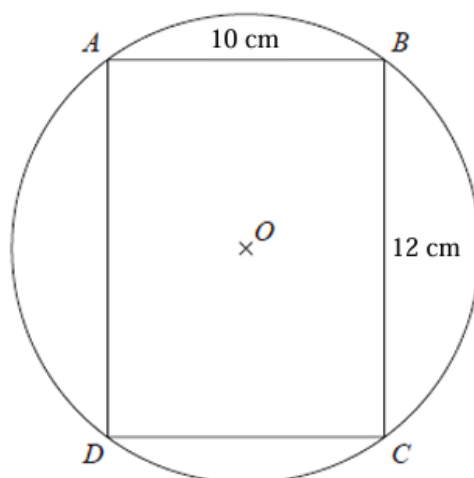
The area of the triangle is  $18 \text{ cm}^2$  greater than the area of the rectangle.

Work out the value of  $x$ .

(4)

### Question 8

The points  $A$ ,  $B$ ,  $C$  and  $D$  lie on a circle, centre  $O$ .  
 $ABCD$  is a rectangle.



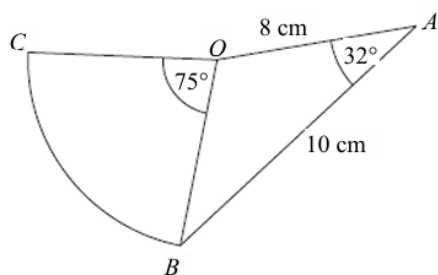
$$AB = 10 \text{ cm} \quad BC = 12 \text{ cm}$$

Work out the circumference of the circle.  
 Give your answer correct to 3 significant figures.

..... cm **(4)**

### Question 9

$OAB$  is a triangle.  
 $OBC$  is a sector of a circle, centre  $O$ .

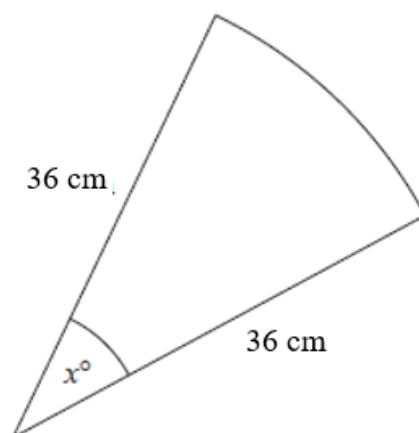


Calculate the area of  $OBC$ .  
 Give your answer correct to 3 significant figures.

**(3)**

**Question 10**

The diagram shows a sector of a circle of radius 36 cm.



The length of the arc is  $5\pi$  cm.

Work out the value of  $x$ .

$$x = \dots\dots\dots$$

**(3 marks)**

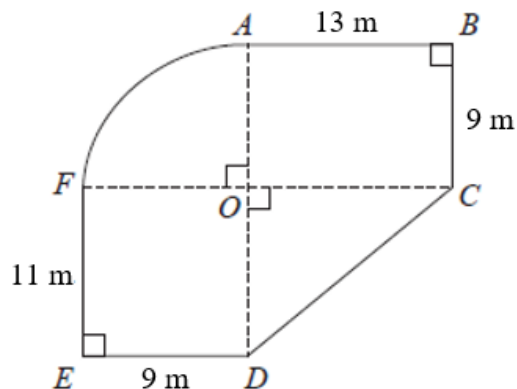
### Question 11

The diagram shows a plan of Japleen's patio.

$ABCO$  and  $DEFO$  are rectangles.

$CDO$  is a right-angled triangle.

$AFO$  is a sector of a circle with centre  $O$  and angle  $AOF = 90^\circ$



Japleen is going to cover her patio with gravel.

Each bag of gravel covers  $15 \text{ m}^2$  of garden.

Each bag of gravel costs £12.95

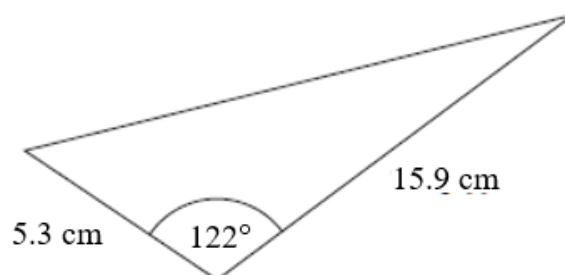
Work out how much it will cost Japleen to buy all the bags of gravel she needs.

£.....

**(5)**

### Question 12

Here is a triangle.

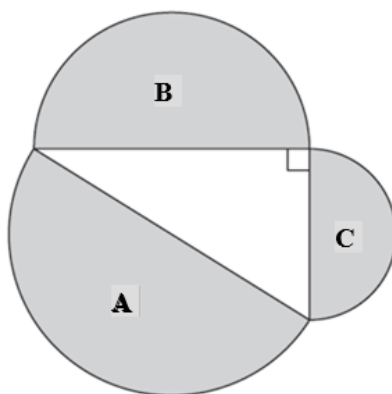


Work out the area of the triangle.  
Give your answer correct to 3 significant figures.

..... cm<sup>2</sup>  
(2 marks)

### Question 13

A right-angled triangle is formed by the diameters of three semicircular regions, **A**, **B** and **C** as shown in the diagram.



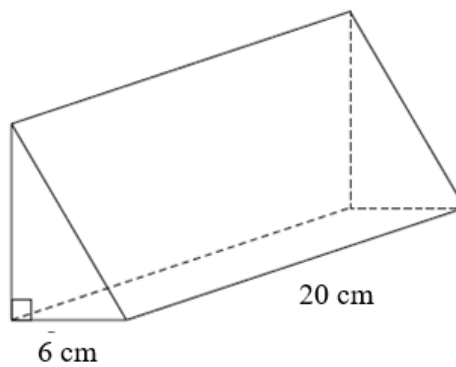
Show that

$$\text{area of region A} = \text{area of region B} + \text{area of region C}$$

---

**(3)****Question 14**

The diagram shows a prism.



The cross section of the prism is a right-angled triangle.

The base of the triangle has length 6 cm

The prism has length 20 cm

The prism has volume  $600 \text{ cm}^3$

Work out the height of the prism.

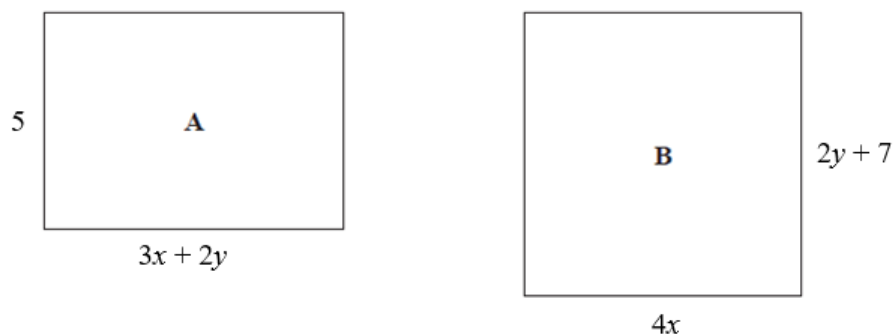
..... cm

**(3 marks)**

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### Question 15

The diagram shows two rectangles, **A** and **B**.



All measurements are in centimetres.

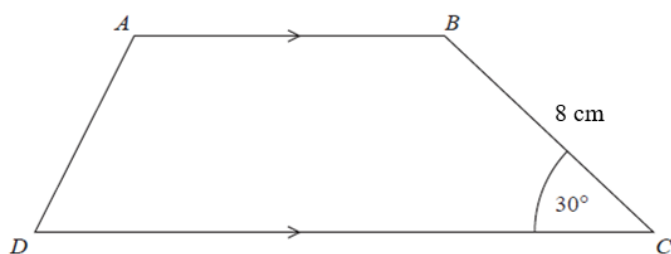
The area of rectangle **A** is equal to the area of rectangle **B**.

Find an expression for  $y$  in terms of  $x$ .

.....  
(4 marks)

### Question 16

Here is trapezium  $ABCD$ .



The area of the trapezium is  $70\text{ cm}^2$

the length of  $AB$  : the length of  $CD = 3 : 4$

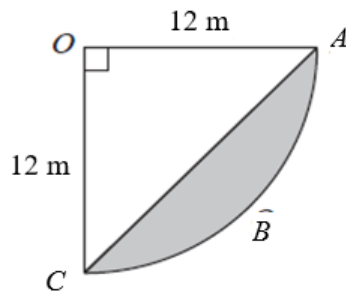
Find the length of  $AB$ .

..... cm

**(5 marks)**

**Question 17**

The diagram shows a sector  $OAC$  of a circle, centre  $O$  and radius 12 cm.



$OAC$  is a triangle.

Work out the area of the shaded segment  $ABC$ .  
Give your answer correct to 3 significant figures.

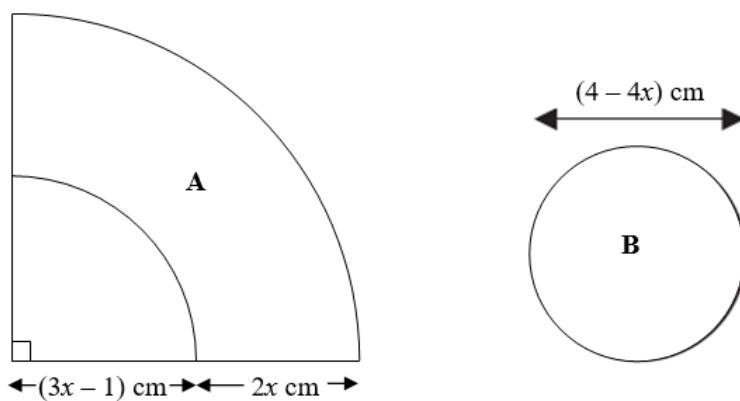
.....**(4)**

**QUESTION 18**

The diagram shows two shapes, **A** and **B**.

Shape **A** is formed by removing a quarter of a circle with radius  $(3x - 1)$  cm from a quarter of the circle with radius  $(5x - 1)$  cm.

Shape **B** is a circle of diameter  $(4 - 4x)$  cm.



The area of shape **A** is equal to the area of shape **B**.

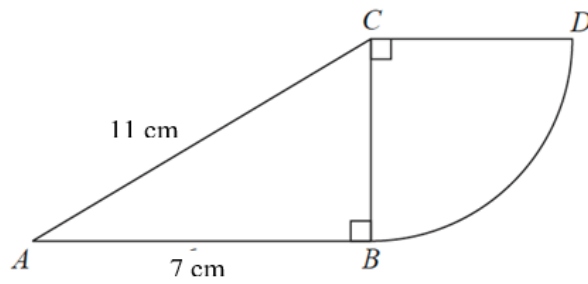
Find the value of  $x$ .

You must show all your working.

.....**(5)**

**QUESTION 19**

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.

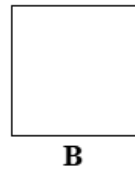
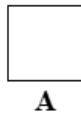
You must show all your working.

---

.....(4)

## QUESTION 20

Here are two squares, **A** and **B**.



The length of each side of square **B** is 5 cm greater than the length of each side of square **A**.  
The area of square **B** is  $100 \text{ cm}^2$  greater than the area of square **A**.

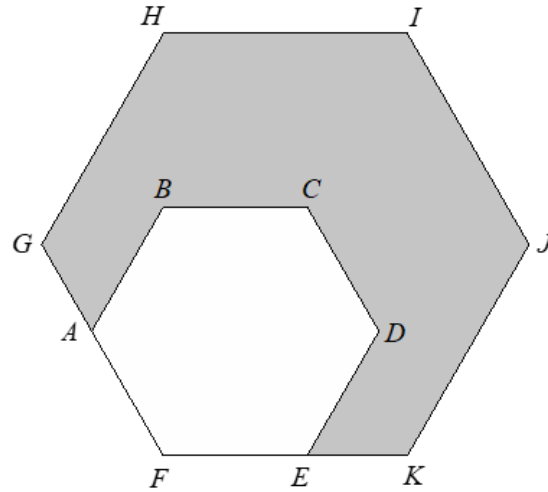
Find the area of square **B**.

Give your answer correct to 3 significant figures.

You must show all your working.

-----**(4)**

## Question 21



$ABCDEF$  is a regular hexagon with sides of length 2.

This hexagon is enlarged, centre  $F$ , by scale factor  $p$  to give hexagon  $FGHIJK$

Show that the area of the shaded region in the diagram is given by  $6\sqrt{3}(p^2 - 1)$

**(4)**

