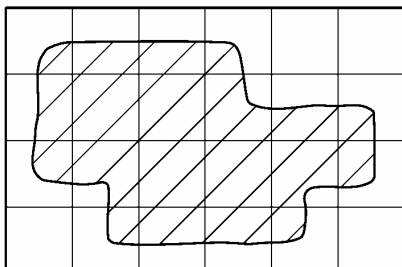


### Question 1

The diagram represents the surface of a lake in winter. The lake is shaded on the grid.



- (a) Estimate the area, in  $\text{cm}^2$ , of the diagram that is shaded.

Each square on the grid represents a square with sides of length 100m.

- (b) Work out the area, in  $\text{m}^2$ , represented by one square on the grid.

- (c) Estimate the area, in  $\text{m}^2$ , of the lake.

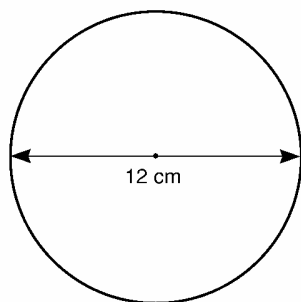
In summer the area of the lake decreases by 15%.

- (d) Work out the area, in  $\text{m}^2$ , of the lake in summer.

---

**Question 2**

Some oil is spilt. The spilt oil is in the shape of a circle. The circle has a diameter of 12 centimetres.



- (a)** Work out the circumference, in cm, of the spilt oil. Give your answer correct to 1 decimal place.

The diameter of the spilt oil increases by 30%

- (b)** Work out the new diameter, in centimetres, of the spilt oil.

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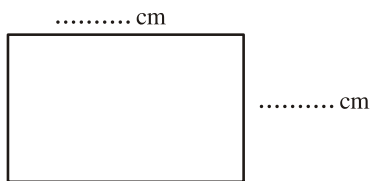
**Question 3**

Three different rectangles each have an area of  $28 \text{ cm}^2$ .

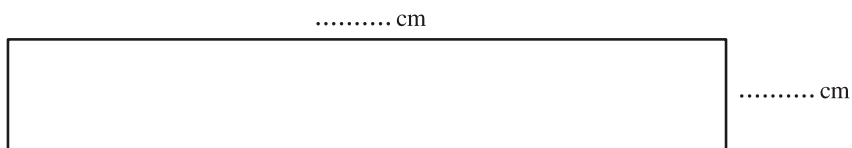
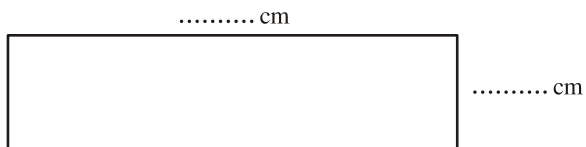
The lengths of all the sides are whole numbers of centimetres.

For each rectangle work out the length of the two sides.

Write your answers on the diagrams.



Diagrams **NOT**  
accurately drawn.

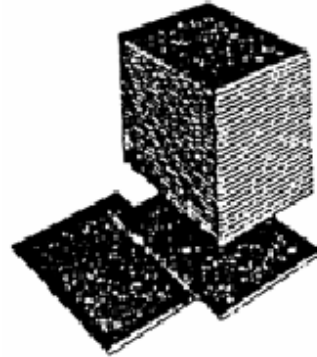


**(3 marks)**

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**Question 4**

There are 27 wall tiles in a pack.  
Only full packs of tiles are sold.  
A pack costs £9.72.



Barry needs 200 tiles.

- (a) (i) How many full packs of tiles must he buy?  
(ii) Work out the total cost of these packs.

£ .....  
(4 marks)

Each tile is a rectangle 20 cm by 15 cm.

- (b) Work out the area of one tile.

..... cm<sup>2</sup>  
(1 mark)

Navdeep wants to tile a wall.  
The wall is a rectangle 3 metres by 2.4 metres.

- (c) Work out the number of tiles she needs to cover the wall completely.  
(3 marks)

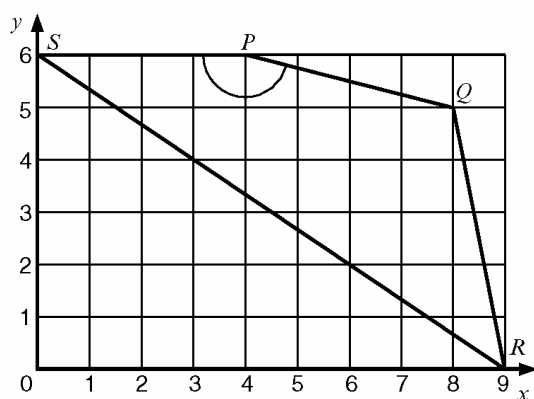
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**Question 5**

**(a)** Write down the co-ordinates of the points

i)  $P$

ii)  $R$ .



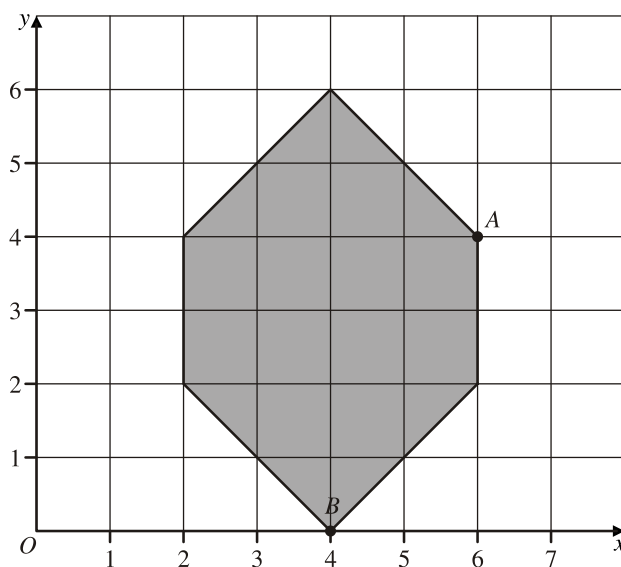
**(b)** On the co-ordinate grid above, plot the following points

$T(1, 2)$ ,  $V(4, 1)$

**(c)** Using your ruler, find the perimeter, in centimetres, of the quadrilateral  $PQRS$ .

**(d)** Measure and write down the size of angle  $P$ .

**Question 6**



**(a)** Write down the coordinates of the point

**(i)**  $A$ ,

**(ii)**  $B$ .

**(2 marks)**

**(b)** Work out the area, in square centimetres, of the shaded shape.

.....  $\text{cm}^2$   
**(1 mark)**

**(c)** Measure the perimeter, in centimetres, of the shaded shape.

.....  $\text{cm}$   
**(2 marks)**

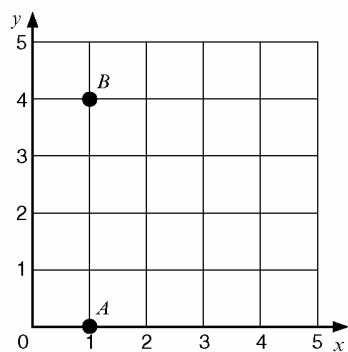
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**Question 7**

**(a)** Write down the co-ordinates of the point

**i)**  $A$

**ii)**  $B$



 = 1 square cm

**(b)** On the grid plot and label the points  $C(3, 4)$  and  $D(3, 2)$ .

**(c)** Work out the area of the shape  $ABCD$ .

---

**Question 8**

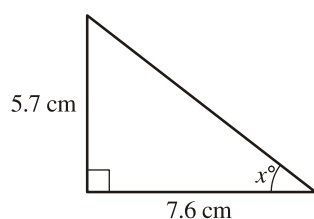


Diagram **NOT**  
accurately drawn.

The diagram shows a sketch of a triangle.

**(a)** Make an accurate drawing of the triangle. **(2 marks)**

**(b) (i)** On your drawing, measure the size of the angle marked  $x^\circ$ .  
..... $^\circ$

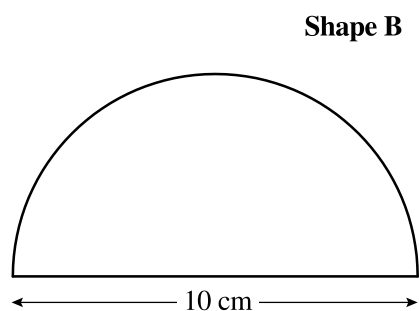
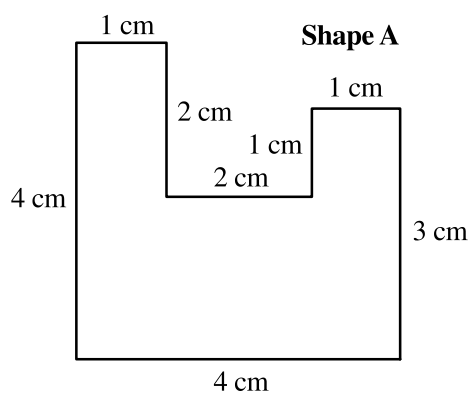
**(ii)** Write down the special mathematical name of the angle marked  $x^\circ$ .  
**(2 marks)**

**(c)** Work out the area of the triangle.  
State the units of your answer. **(3 marks)**



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**Question 9**



Diagrams **NOT**  
accurately drawn

Diagrams **NOT** accurately drawn

**(a)** Work out the area of Shape A.

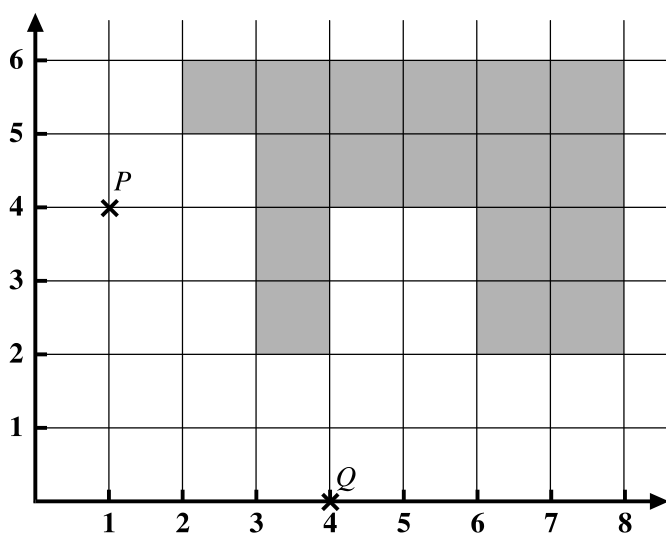
**(2 marks)**

**(b) i)** Work out the perimeter of the semicircle, Shape B

**ii)** Work out the area of the semicircle, Shape B

**(5 marks)**

**Question 10**



(a) Write down the co-ordinates of the points

i)  $P$ ,

ii)  $Q$ .

**(2 marks)**

Each small square on the grid has a side of 1 cm.

(b) Work out the area of the shaded shape.

**(2 marks)**

Write down the units with your answer.

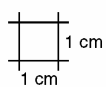
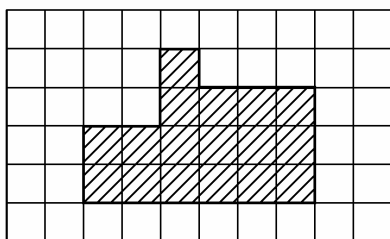
(c) Work out the perimeter of the shaded shape.

**(2 marks)**

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**Question 11**

- (a) Find the area, in  $\text{cm}^2$ , of the shape.

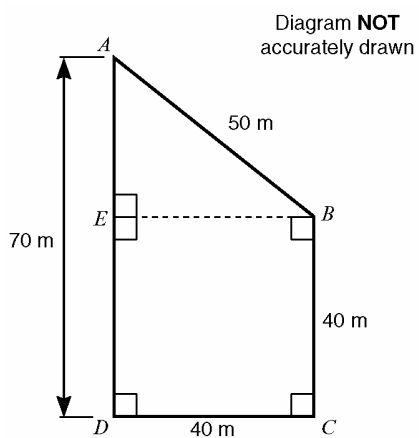


- (b) Find the perimeter, in cm, of the shape.

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**Question 12**

- (a) Work out the perimeter of the whole shape  $ABCD$ .



**In part b you must write down the units with your answer.**

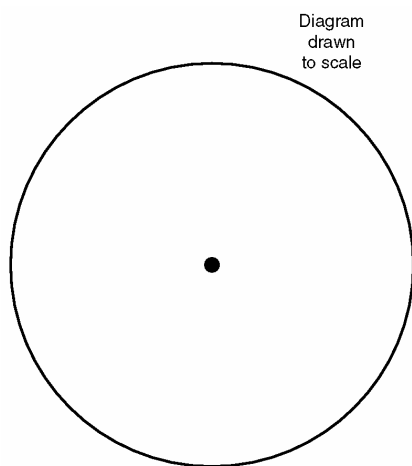
- (b) Work out the area of
- the square  $EBCD$ ,
  - the triangle  $ABE$ .

---

**Question 13**

1 cm represents 10 km.

An earthquake has its centre at the centre of the circle shown in the scale drawing and affects everywhere inside the circle.

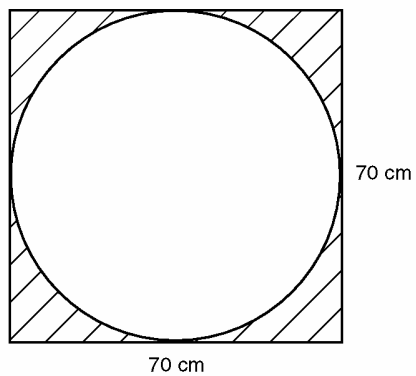


- (a) Find the actual radius, in kilometres, of the circle affected by the earthquake.
- (b) Calculate the area affected by the earthquake. Give your answer in  $\text{km}^2$  correct to the nearest whole number.

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**Question 14**

The diagram shows a circle of diameter 70 cm inside a square of side 70 cm.

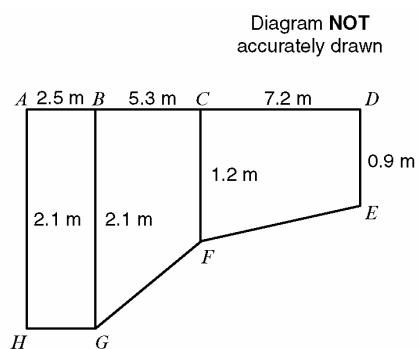


Work out the area of the shaded part of the diagram.  
Give your answer correct to 3 significant figures.

### Question 15

Here is a side view of a swimming pool.

$ABCD$  is a horizontal straight line.  $AH$ ,  $BG$ ,  $CF$  and  $DE$  are vertical lines.

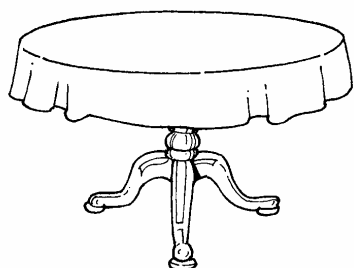


- (a) Write down the mathematical name for the quadrilateral  $BCFG$ .
- (b) Work out the area of quadrilateral  $BCFG$ .

---

**Question 16**

Mary has a circular dining table with a radius of 0.65 m.



- (a)** Work out the area of the top of the table. Give your answer to 3 significant figures.

The perimeter of the circular tablecloth is 5m.

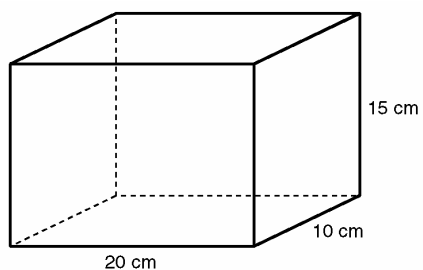
- (b)** Work out the diameter of the tablecloth.



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**Question 17**

In this question you **must** write down the units of your answer.



- (a) Work out the area of the base of the solid shape.
- (b)
  - i) Work out the volume of the solid shape.
  - ii) Write this volume in litres.

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**Question 18**

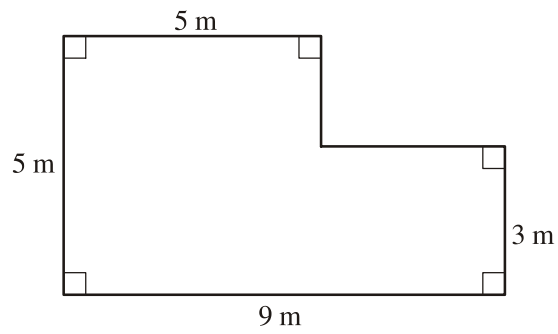


Diagram **NOT**  
accurately  
drawn

This diagram shows the floor plan of a room.

Work out the area of the floor.  
Give the units with your answer.

**(4 marks)**

**Question 19**

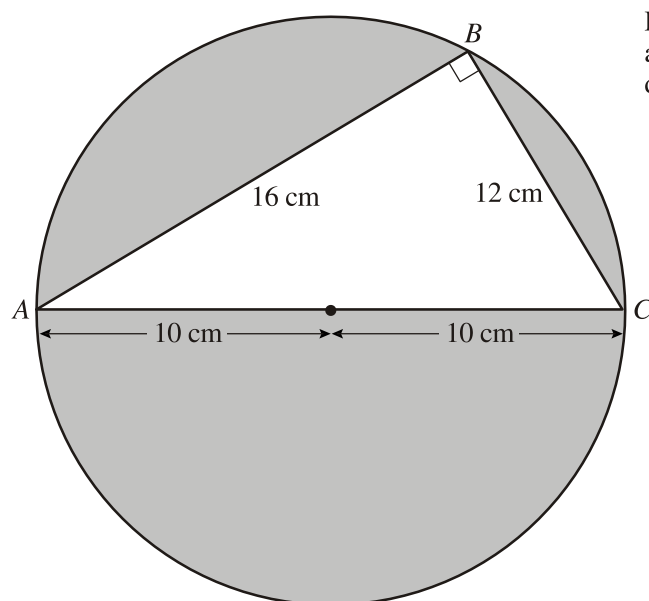


Diagram **NOT**  
accurately  
drawn

The diagram shows a right-angled triangle  $ABC$  and a circle.  
 $A$ ,  $B$  and  $C$  are points on the circumference of the circle.

$AC$  is a diameter of the circle.

The radius of the circle is 10 cm.

$AB = 16$  cm and  $BC = 12$  cm.

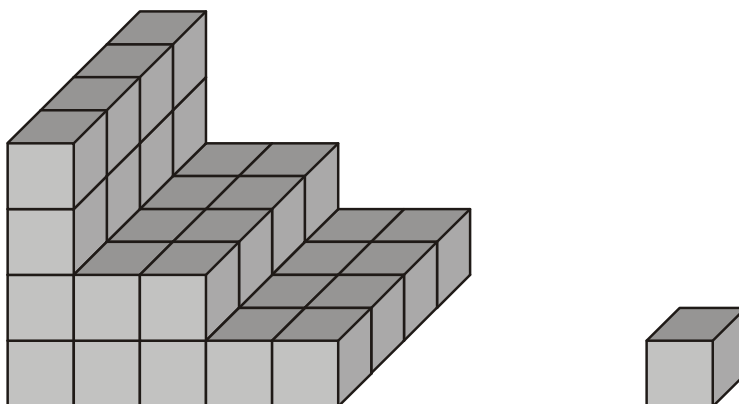
Work out the area of the shaded part of the circle.

Give your answer correct to the nearest  $\text{cm}^2$ .

**(6 marks)**

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**Question 20**



This solid shape is made up from cubes of side one centimetre.

Find the volume of the shape.

.....  $\text{cm}^3$   
**(2 marks)**