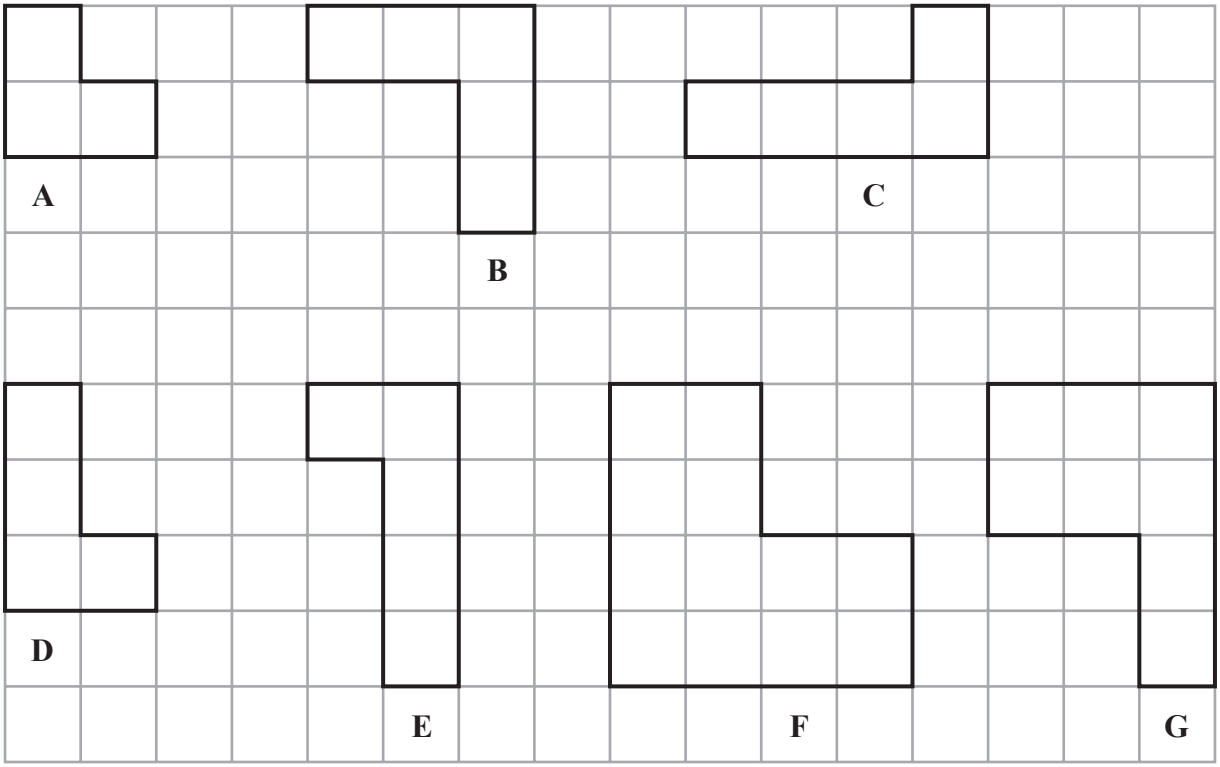
1 Here are seven shapes on a centimetre grid.



(a) Write down the letters of the two shapes that are congruent.

..... and .....

(1)

Two of the seven shapes are similar but are not congruent.

(b) Write down the letters of these two shapes.

..... and .....

(1)

Shape **F** has exactly one line of symmetry.

(c) On shape **F** on the grid, draw this line of symmetry.

(1)

(d) Work out the perimeter of shape **B**.

..... cm

(1)

(e) Work out the area of shape **G**.

..... cm^2

(1)

(Total for Question 1 is 5 marks)

2 Here is a rectangle made from 12 square tiles.

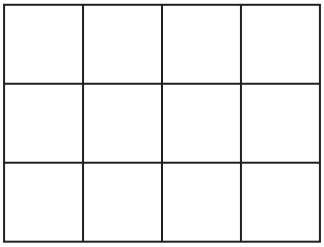


Diagram **NOT** accurately drawn

The perimeter of each tile is 20 cm.

Work out the area of the rectangle.

..... cm^2

(Total for Question 2 is 3 marks)

3 (a) Change 5.48 metres into centimetres.

..... cm

(1)

(b) Change 4600 millilitres into litres.

..... litres

(1)

Here is an isosceles triangle ABC.

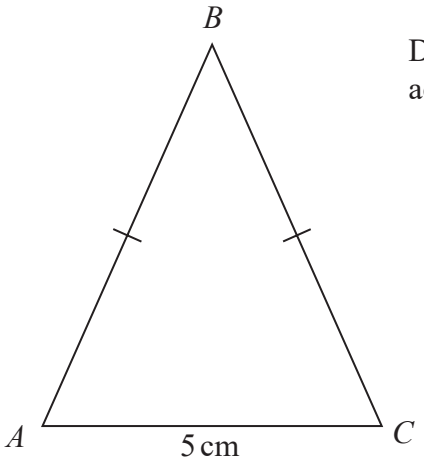


Diagram **NOT** accurately drawn

$AC = 5$ cm.

The perimeter of the triangle is 32 cm.

(c) Work out the length of AB.

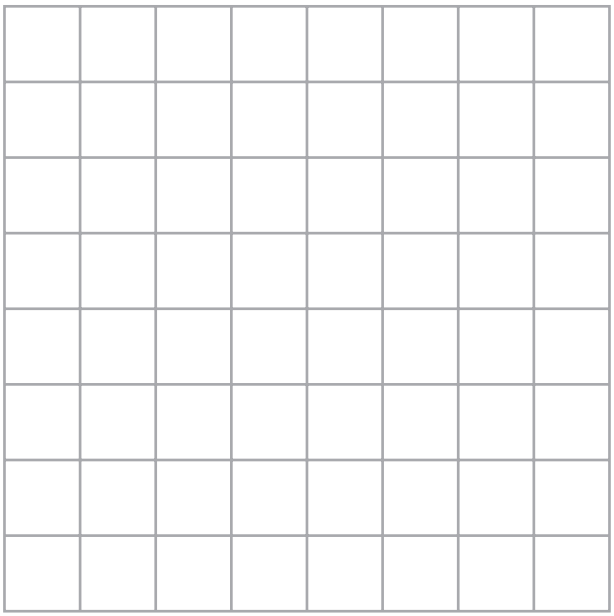
..... cm

(2)

(Total for Question 3 is 4 marks)

4 Here is a centimetre grid.

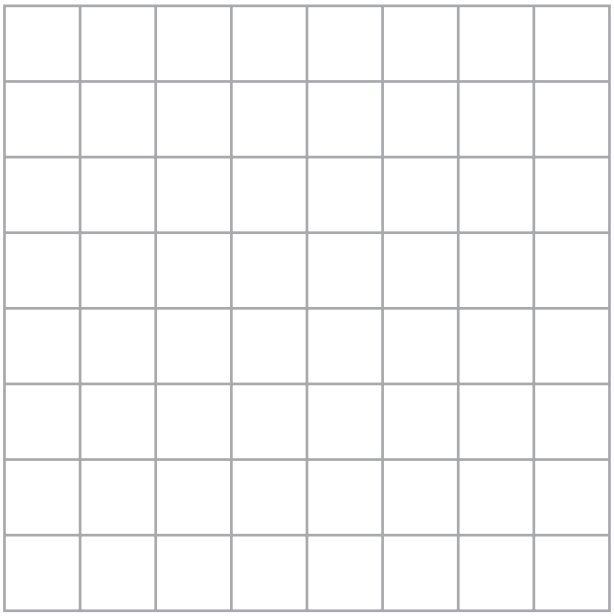
(a) On the grid, draw a rectangle with a perimeter of 14 cm.



(2)

Here is a centimetre grid.

(b) On the grid, draw a right-angled triangle with an area of 12 cm^2



(2)

(Total for Question 4 is 4 marks)

5 The diagram shows a rectangle and a square.

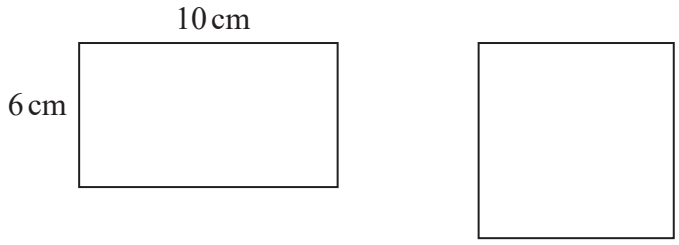


Diagram **NOT** accurately drawn

The perimeter of the rectangle is equal to the perimeter of the square.
The area of the rectangle is less than the area of the square.

Work out by how much the area of the rectangle is less than the area of the square.

..... cm^2

(Total for Question 5 is 4 marks)

6 Here is a diagram of a trapezium.

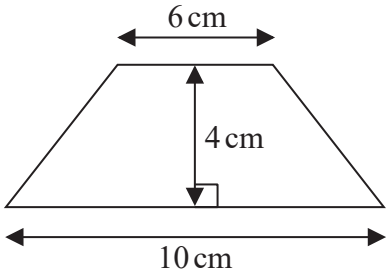


Diagram **NOT** accurately drawn

(e) Work out the area of the trapezium.

..... cm^2

(Total for Question 6 is 2 marks)

7 Here is a rectangle.

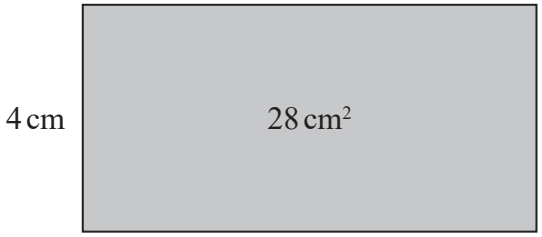


Diagram **NOT** accurately drawn

The area of the rectangle is 28 cm^2

Three of these rectangles are used to make the shape below.

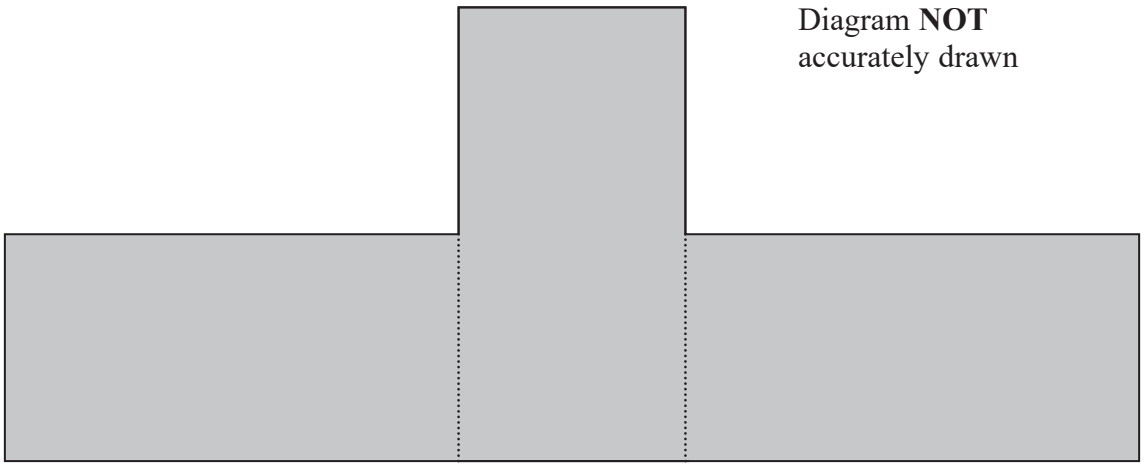


Diagram **NOT** accurately drawn

Work out the perimeter of the shape.

..... cm

(Total for Question 7 is 4 marks)

8 Here is a square.

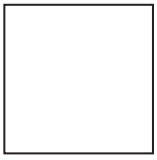


Diagram **NOT** accurately drawn

The perimeter of the square is 24 cm.

The shaded rectangle below is made from 4 of these squares.

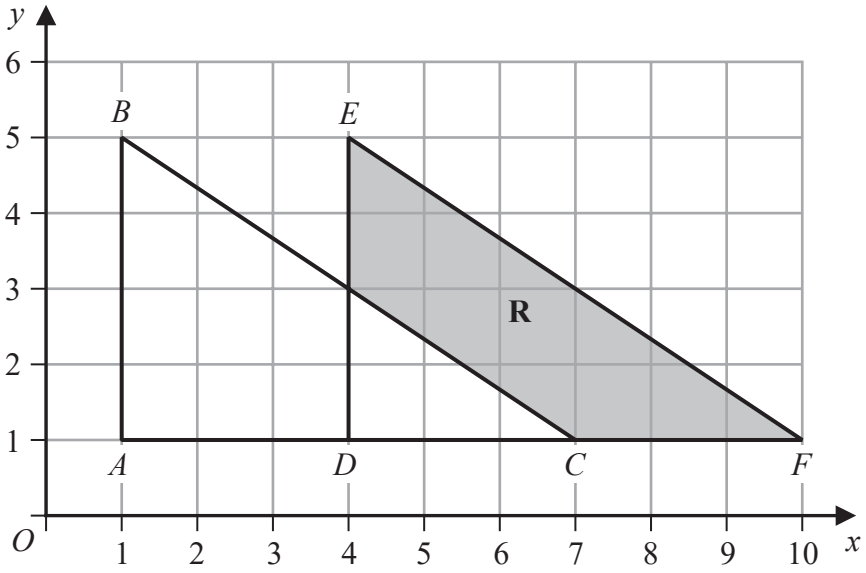
Diagram **NOT** accurately drawn

Work out the perimeter of the shaded rectangle.

..... cm

(Total for Question 8 is 3 marks)

9 The diagram shows two congruent triangles, *ABC* and *DEF*, drawn on a centimetre grid.



Find the area of the region **R**, shown shaded in the diagram.

..... cm^2

(Total for Question 9 is 3 marks)

10 A circle has radius 7.5 cm

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

..... cm^2

(Total for Question 10 is 2 marks)

11 The diagram shows a trapezium.

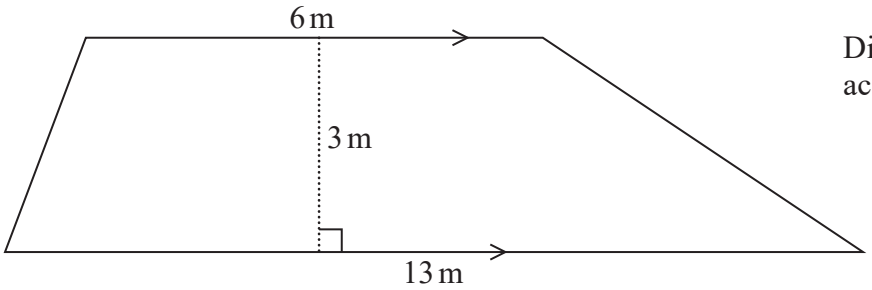


Diagram **NOT** accurately drawn

Work out the area of the trapezium.

..... m^2

(Total for Question 11 is 2 marks)

12 The diagram shows a shape *ABCDEFG* made from a square *ABDF* and three identical isosceles triangles *BCD*, *DEF* and *FGA*.

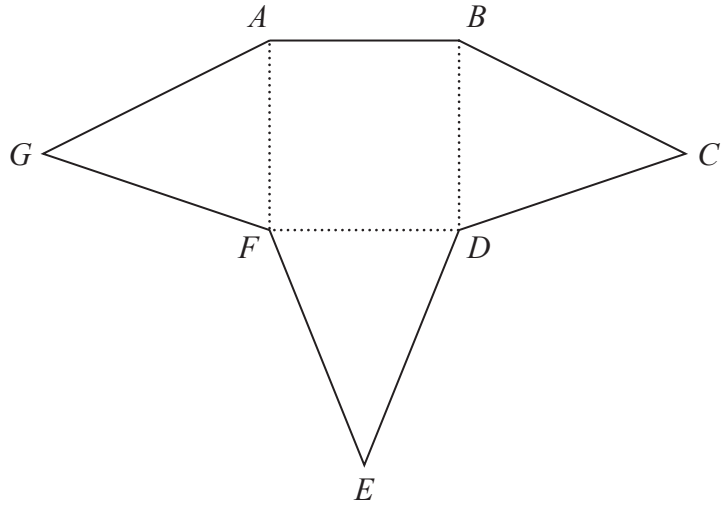


Diagram **NOT** accurately drawn

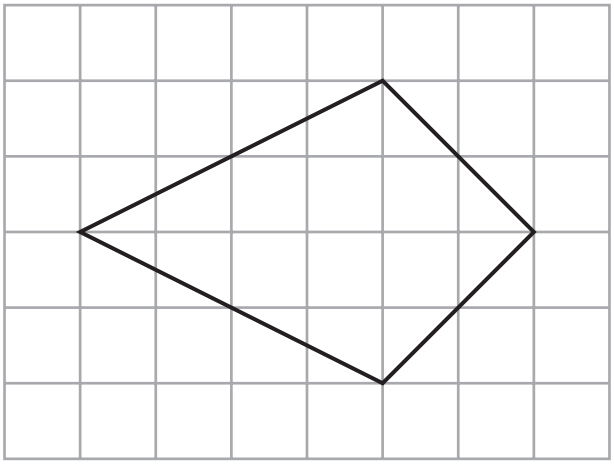
The perimeter of the square *ABDF* is 48 cm.
The perimeter of each isosceles triangle is 30 cm.

Work out the perimeter of the shape *ABCDEFG*.

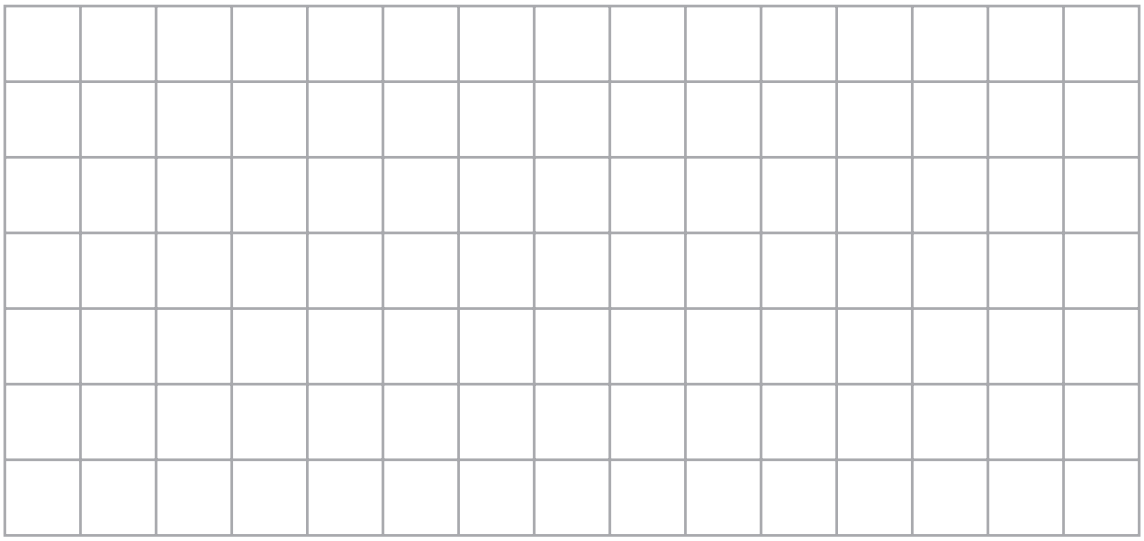
..... cm

(Total for Question 12 is 4 marks)

13 The diagram shows a kite drawn on a centimetre grid.



On the centimetre grid below, draw a rectangle that has the same area as the kite.



(Total for Question 13 is 3 marks)

14 The diagram shows a rectangle $ABCD$ and a semicircle with diameter AB where $AB = 12\,\text{cm}$. The point E lies on DC and also on the semicircle.

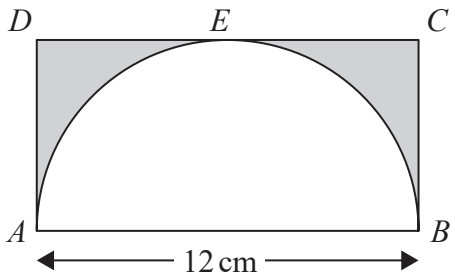


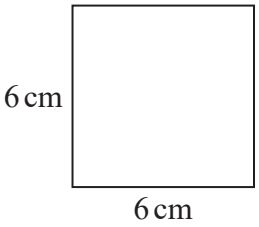
Diagram **NOT** accurately drawn

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

.....

(Total for Question 14 is 3 marks)

15 The diagram shows a square and an isosceles triangle.



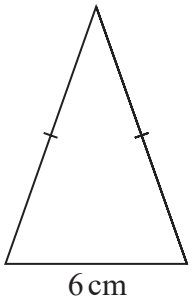


Diagram **NOT** accurately drawn

The square has sides of length 6 cm.
The base of the isosceles triangle is 6 cm.

The perimeter of the square is equal to the perimeter of the isosceles triangle.

The shaded shape is made by putting three of the isosceles triangles around the square as shown in the diagram below.

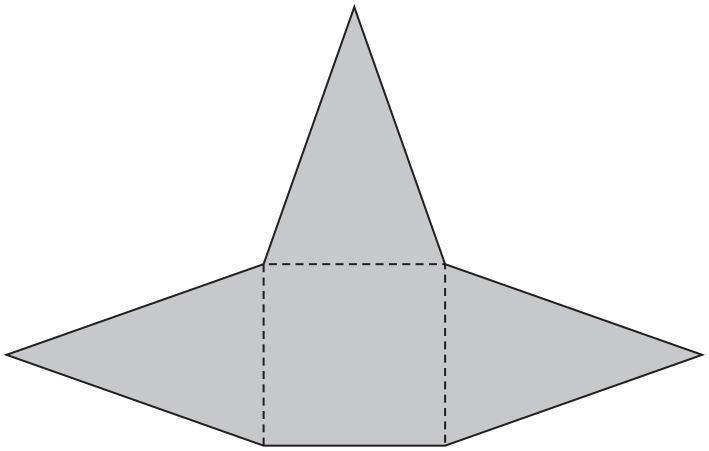


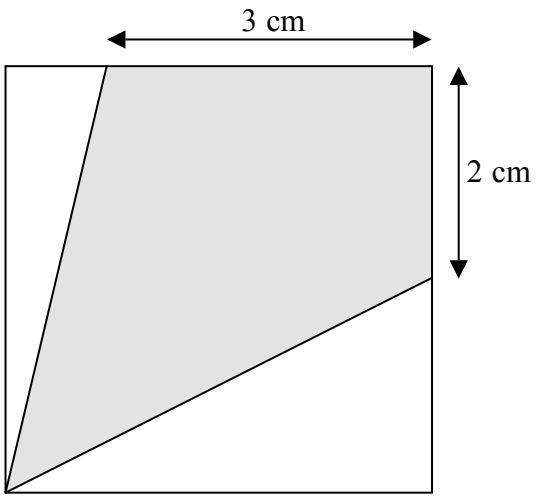
Diagram **NOT** accurately drawn

Work out the perimeter of the shaded shape.
Show your working clearly.

..... cm

(Total for Question 15 is 4 marks)

16 The diagram shows a square with perimeter 16 cm.

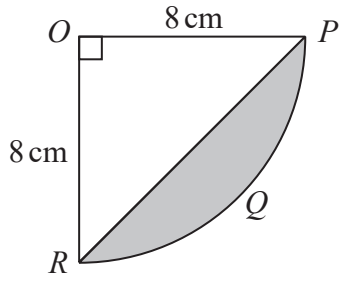


Work out the proportion of the area inside the square that is shaded.

.....

(Total for Question 16 is 5 marks)

17 The diagram shows a sector $OPQR$ of a circle, centre O and radius 8 cm.



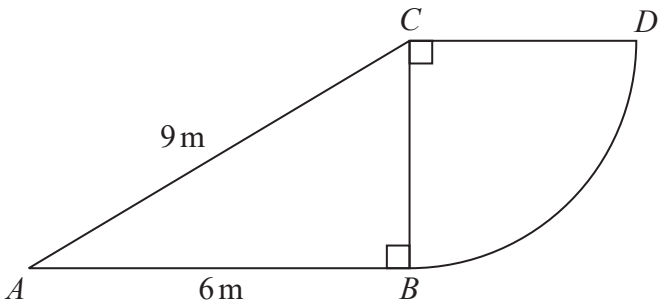
OPR is a triangle.

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

..... cm^2

(Total for Question 17 is 4 marks)

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



The right-angled triangle ABC has angle $ABC = 90°$
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^2

(Total for Question 18 is 4 marks)

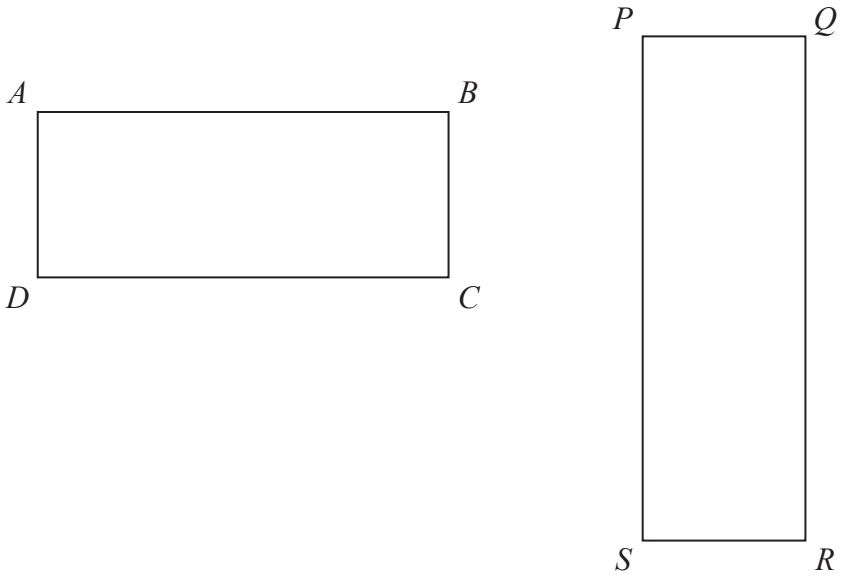
19 The perimeter of a right-angled triangle is 72 cm.
The lengths of its sides are in the ratio 3 : 4 : 5

Work out the area of the triangle.

.....cm^2

(Total for Question 19 is 4 marks)

20 Here are two rectangles.



$QR = 10\,\text{cm}$
$BC = PQ$

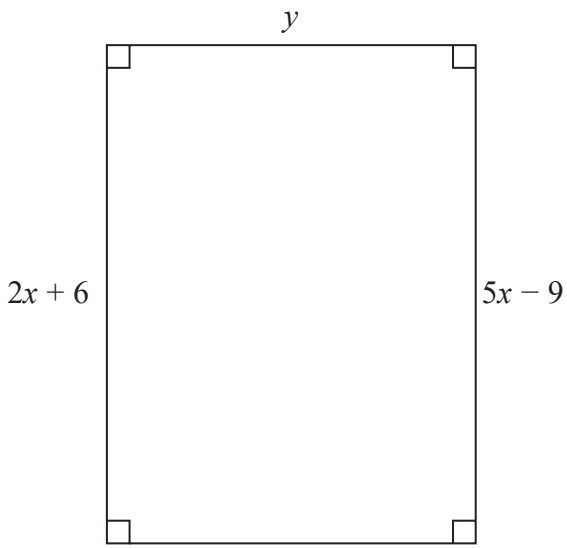
The perimeter of $ABCD$ is 26 cm
The area of $PQRS$ is $45\,\text{cm}^2$

Find the length of AB.

..... cm

(Total for Question 21 is 4 marks)

22 Here is a rectangle.



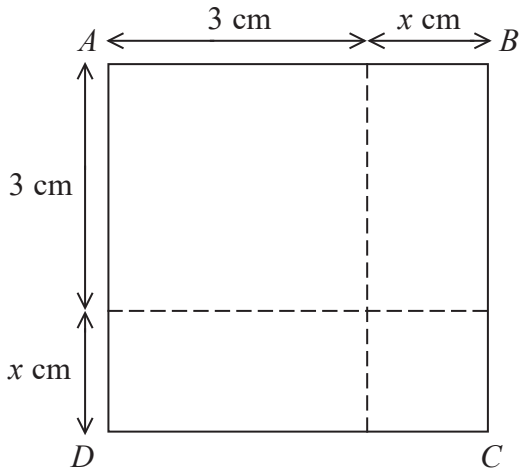
All measurements are in centimetres.

The area of the rectangle is 48 cm^2.

Show that $y = 3$

(Total for Question 22 is 4 marks)

23



The area of square $ABCD$ is 10 cm^2.

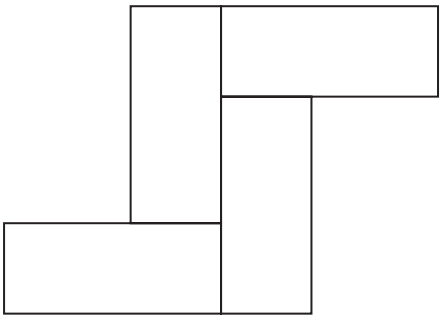
Show that $x^2 + 6x = 1$

(Total for Question 23 is 3 marks)

24 Here is a rectangle.

The length of the rectangle is 7 cm longer than the width of the rectangle.

4 of these rectangles are used to make this 8-sided shape.



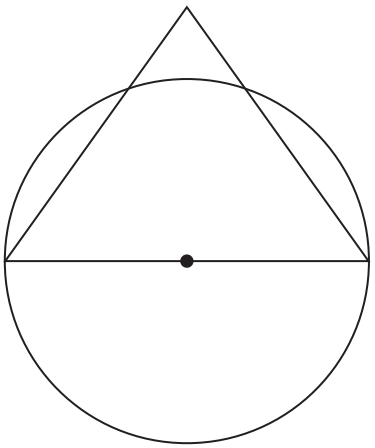
The perimeter of the 8-sided shape is 70 cm.

Work out the area of the 8-sided shape.

..... cm^2

(Total for Question 24 is 5 marks)

25 The diagram shows a circle and an equilateral triangle.



One side of the equilateral triangle is a diameter of the circle.
The circle has a circumference of 44 cm.

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

.....cm^2

(Total for Question 25 is 3 marks)

26 A square, with sides of length x cm, is inside a circle.
Each vertex of the square is on the circumference of the circle.

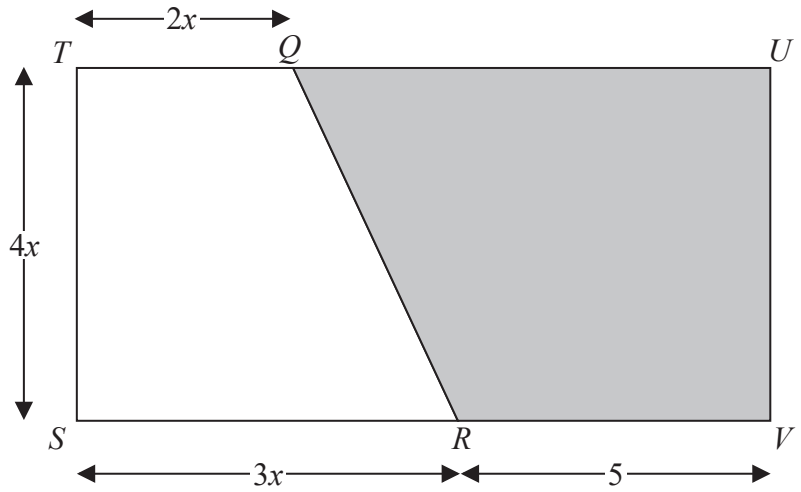
The area of the circle is 49 cm^2.

Work out the value of x.
Give your answer correct to 3 significant figures.

.....

(Total for Question 26 is 4 marks)

27 The diagram shows rectangle *STUV*.
TQU and *SRV* are straight lines.
All measurements are in cm.

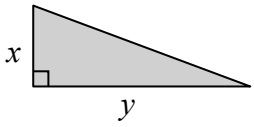


The area of trapezium *QUVR* is A cm^2

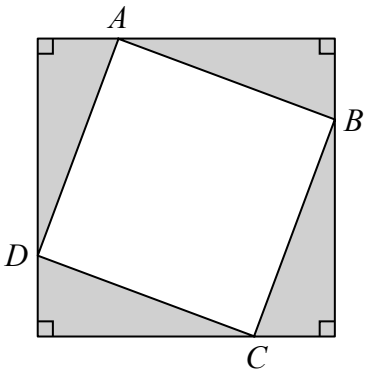
Show that $A = 2x^2 + 20x$

(Total for Question 27 is 3 marks)

28 Here is a right-angled triangle.



Four of these triangles are joined to enclose the square *ABCD* as shown below.



Show that the area of the square *ABCD* is $x^2 + y^2$

(Total for Question 28 is 3 marks)