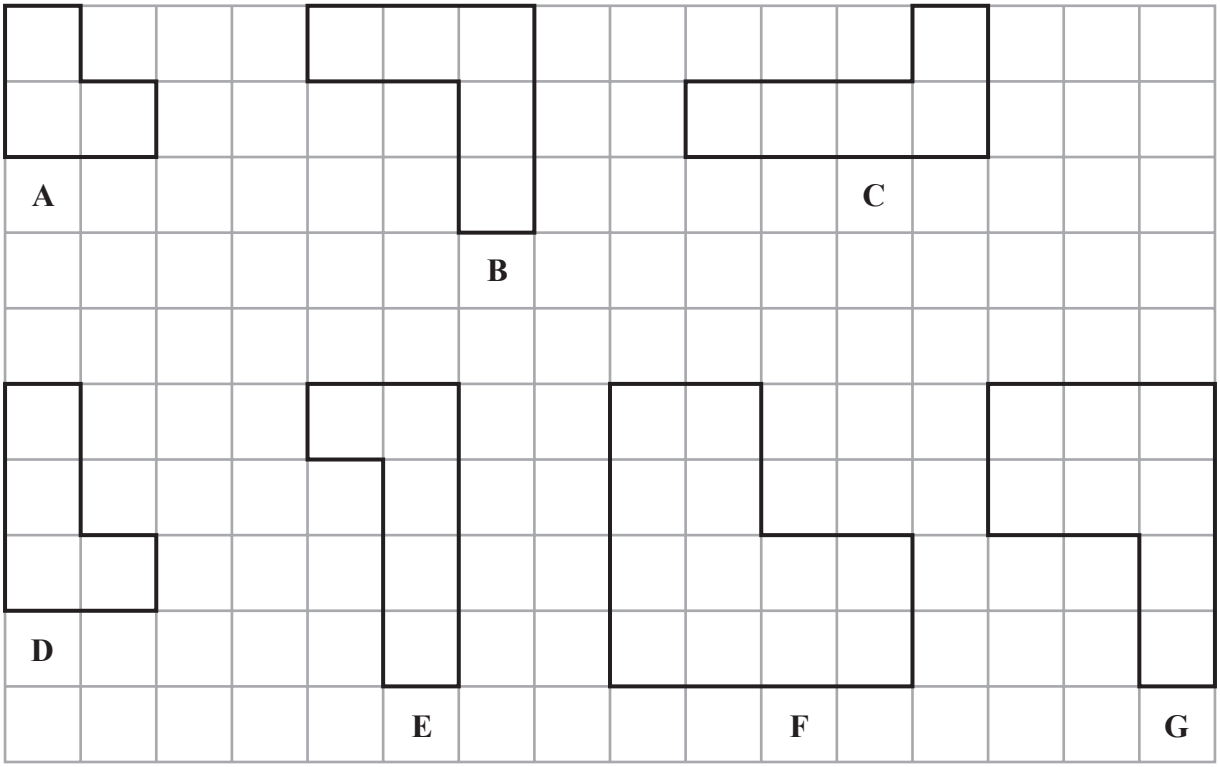
1 Here are seven shapes on a centimetre grid.



(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.

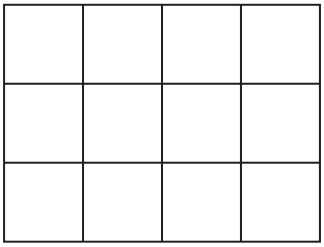


Diagram **NOT** accurately drawn

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.

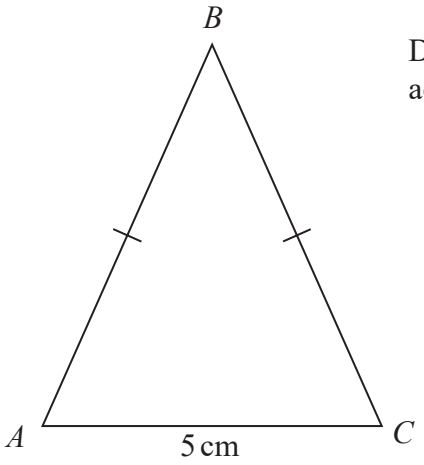


Diagram **NOT** accurately drawn

$AC = 5$ cm.

The perimeter of the triangle is 32 cm.

(c) Work out the length of AB.

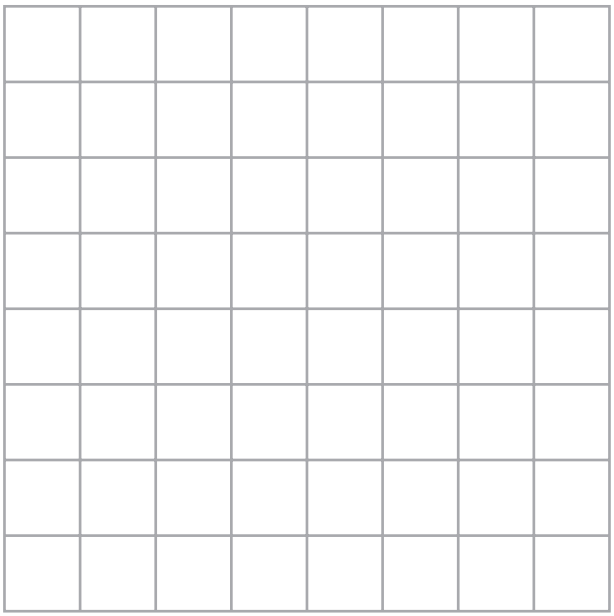
..... cm

(2)

(Total for Question 3 is 4 marks)

4 Here is a centimetre grid.

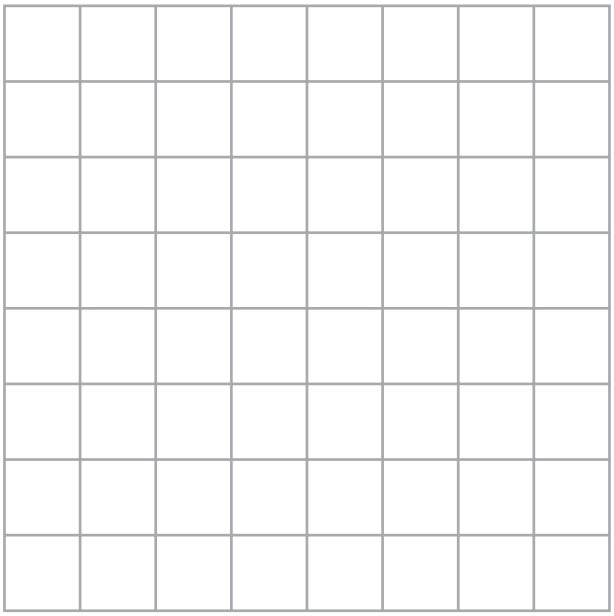
(a) On the grid, draw a rectangle with a perimeter of 14 cm.



(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.

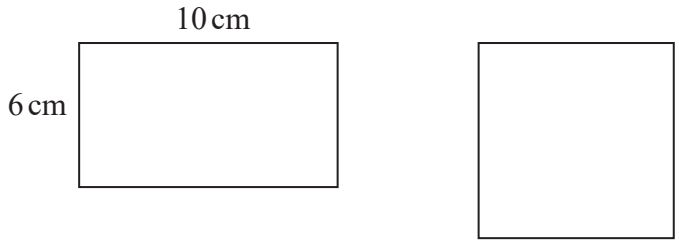


Diagram **NOT** accurately drawn

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.

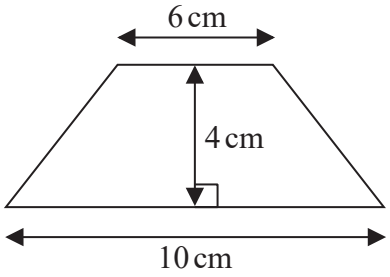


Diagram **NOT** accurately drawn

(e) Work out the area of the trapezium.

..... cm^2

(Total for Question 6 is 2 marks)

7 Here is a rectangle.

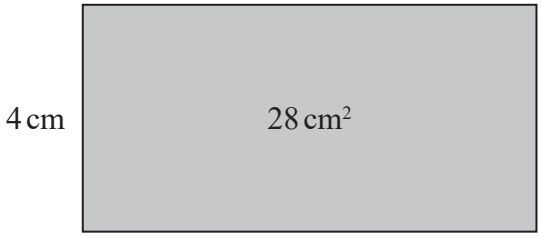


Diagram **NOT** accurately drawn

The area of the rectangle is 28 cm^2

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

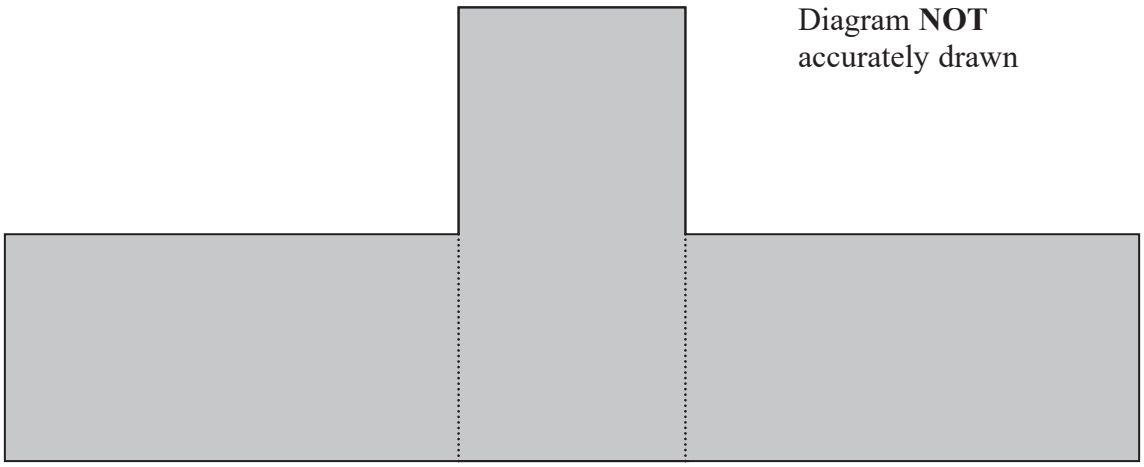


Diagram **NOT** accurately drawn

Work out the perimeter of the shape.

..... cm

(Total for Question 7 is 4 marks)

8 Here is a square.

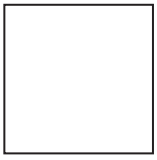


Diagram **NOT** accurately drawn

The perimeter of the square is 24 cm.

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

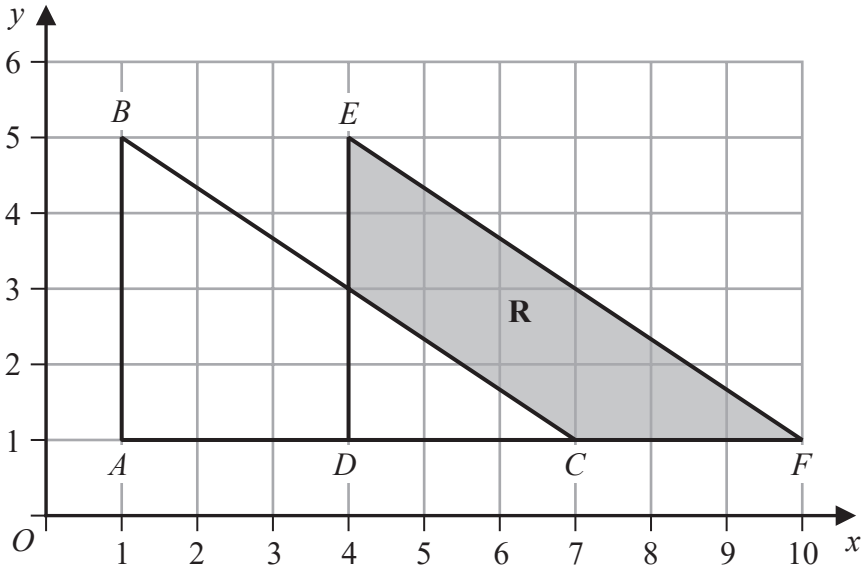
Diagram **NOT** accurately drawn

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.

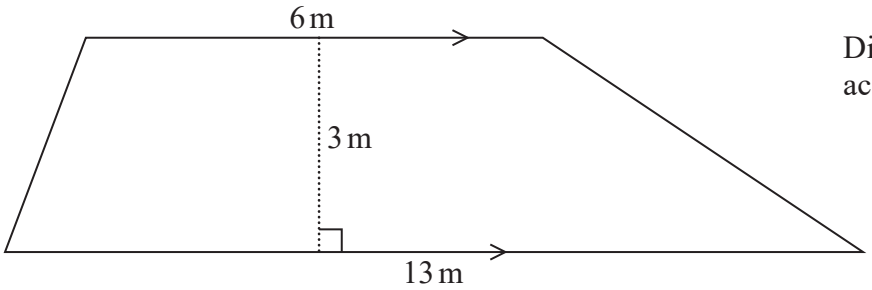


Diagram **NOT** accurately drawn

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*.

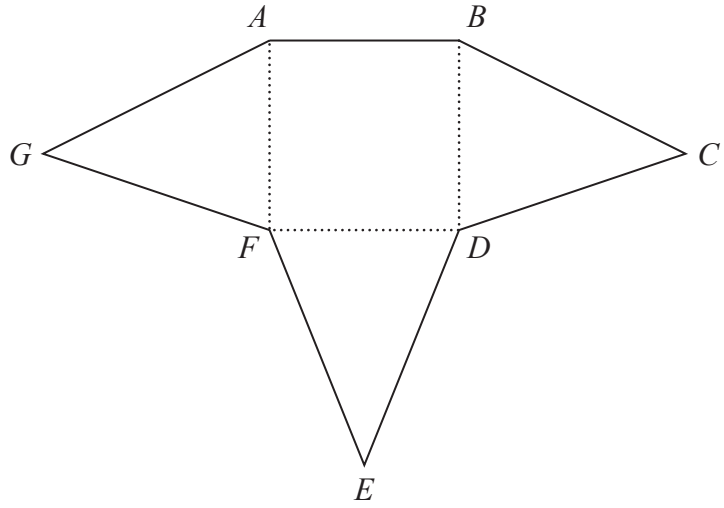


Diagram **NOT** accurately drawn

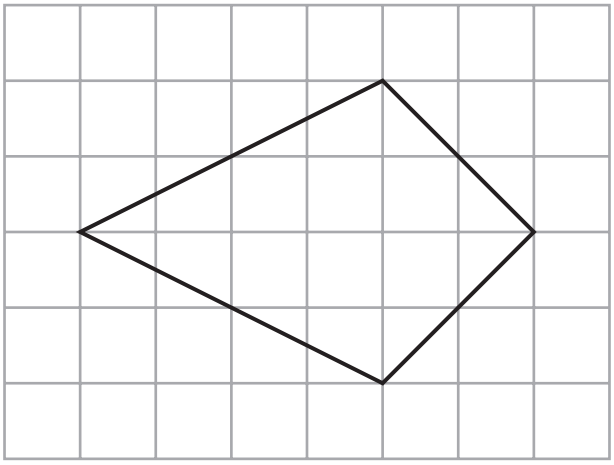
The perimeter of the square *ABDF* is 48 cm.
The perimeter of each isosceles triangle is 30 cm.

Work out the perimeter of the shape *ABCDEFG*.

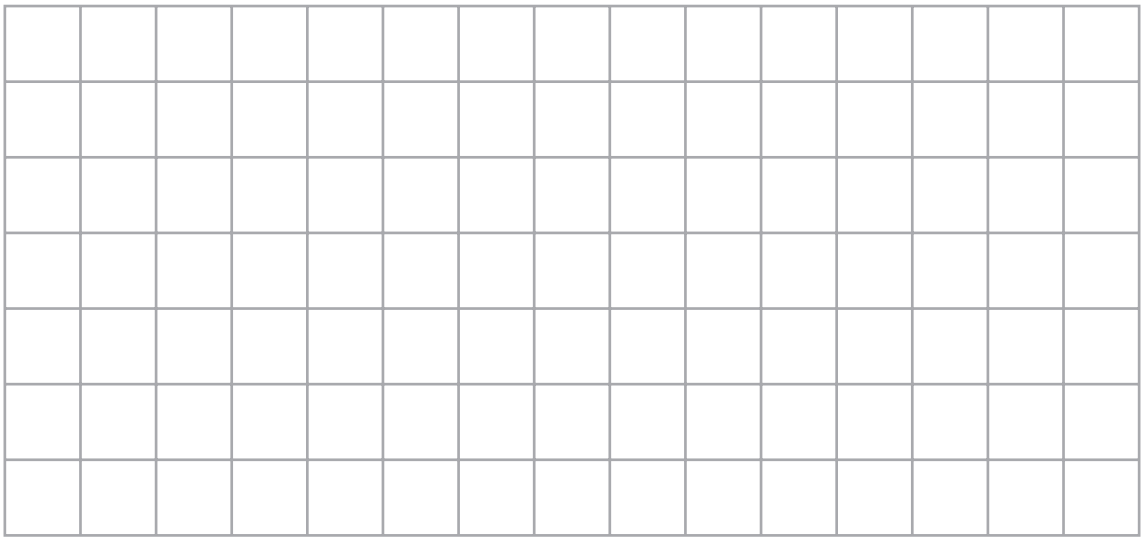
..... cm

(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.

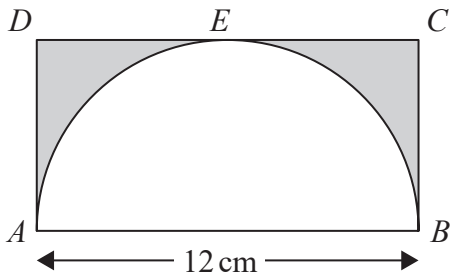


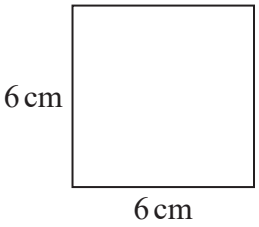
Diagram **NOT** accurately drawn

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.



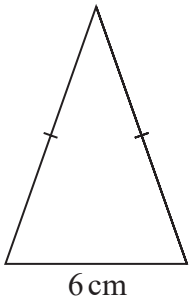


Diagram **NOT** accurately drawn

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.

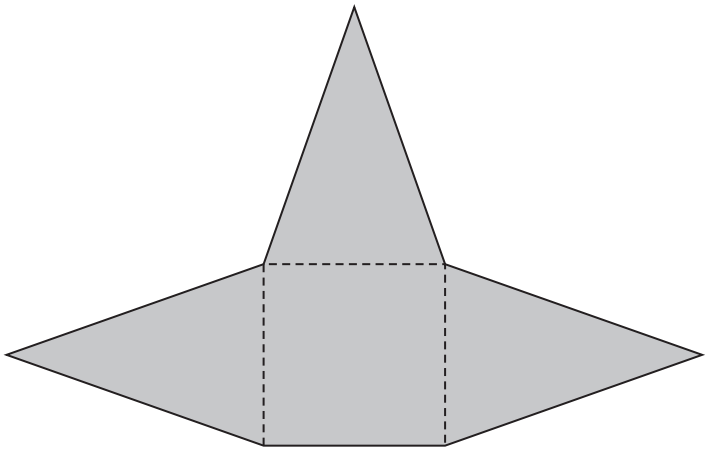


Diagram **NOT** accurately drawn

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 right-angled triangle.

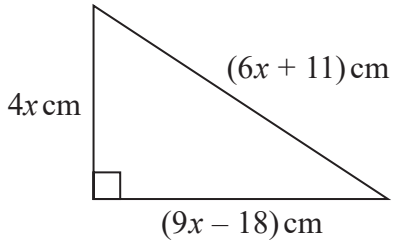


Diagram **NOT** accurately drawn

The perimeter of the triangle is 126 cm.

Work out the area of the triangle.

..... cm^2

(Total for Question 16 is 4 marks)

17 A circle has radius 9 cm.

(a) Work out the circumference of the circle.
Give your answer correct to 1 decimal place.

cm

(2)

The diagram shows the pentagon *ABCDE*.

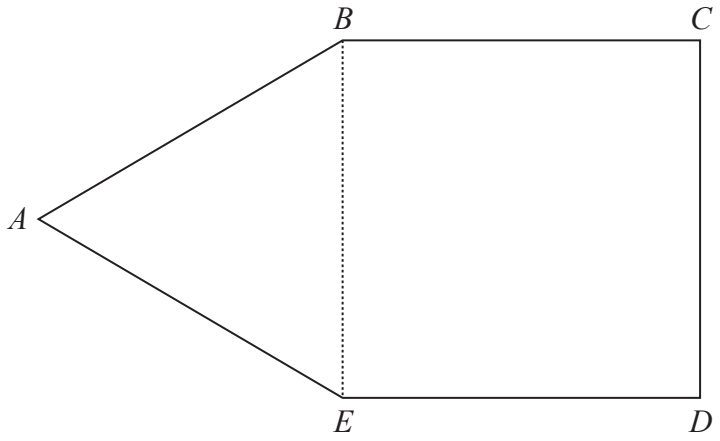


Diagram **NOT** accurately drawn

ABE is an equilateral triangle.

BCDE is a square with area 169 cm^2

(b) Work out the perimeter of *ABCDE*.

cm

(3)

(Total for Question 17 is 5 marks)

18 The diagram shows the plan of a floor.

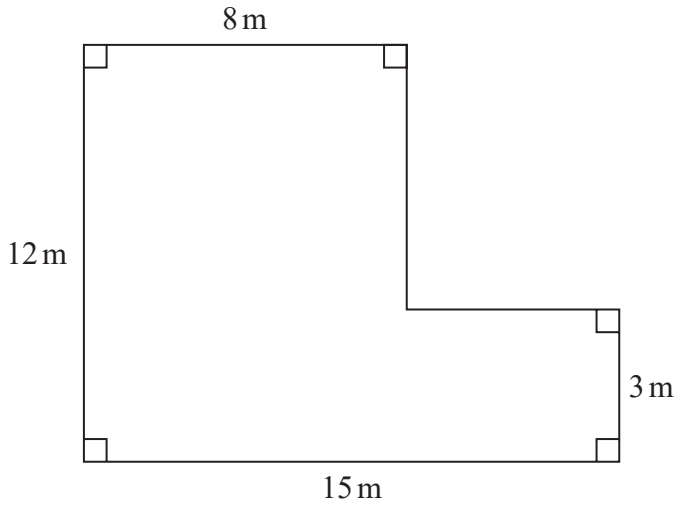


Diagram **NOT** accurately drawn

Indira is going to paint the floor.
She needs to buy enough tins of paint to cover the floor with one coat of paint.

Each tin of paint covers an area of 7 m^2
Each tin of paint costs £23.90

Indira buys the least possible number of tins of paint.

Work out the total cost of the tins of paint that Indira buys.
Show your working clearly.

£.....

(Total for Question 18 is 5 marks)

19 The diagram shows the plan of Sophia's gym floor.

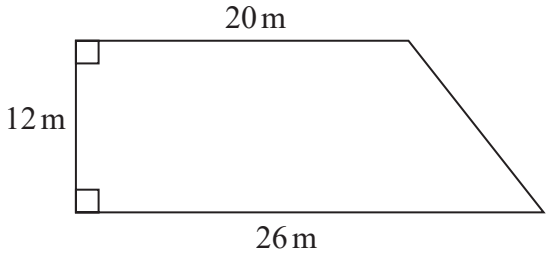


Diagram **NOT** accurately drawn

Sophia is going to paint all the gym floor.

Each tin of paint she is going to use covers an area of 20 m^2

There is a special offer on the paint that Sophia is going to buy.

Special Offer

1 tin for $13
4 tins for $40

Work out the least amount of money that Sophia has to pay in order to buy all the paint she needs.
Show your working clearly.

$ .....

(Total for Question 19 is 5 marks)

20 The diagram shows a trapezium.

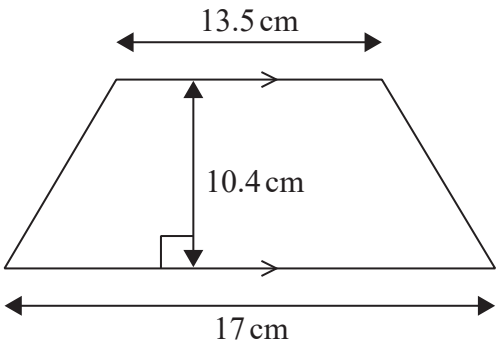


Diagram **NOT** accurately drawn

(a) Work out the area of the trapezium.

..... cm^2

(2)

The diagram shows a cuboid.

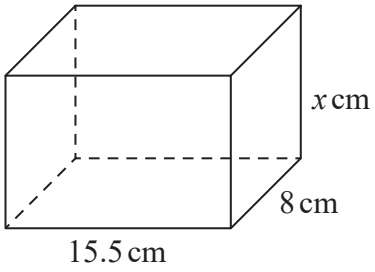


Diagram **NOT** accurately drawn

The volume of the cuboid is 806 cm^3

(b) Work out the value of x.

x = ...

(3)

(Total for Question 20 is 5 marks)

21 Here is a hexagon *ABCDEF*.

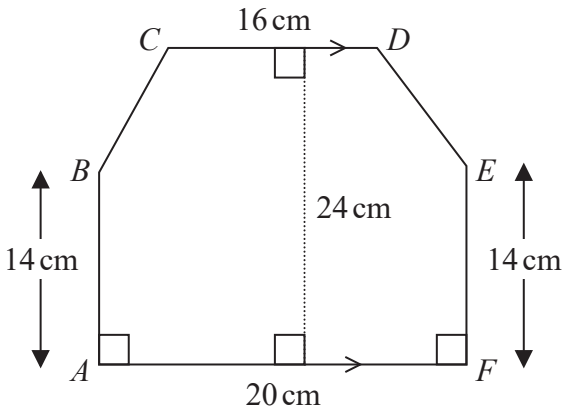


Diagram **NOT** accurately drawn

CD is parallel to *AF*.

Work out the area of hexagon *ABCDEF*.

..... cm^2

(Total for Question 22 is 4 marks)

23 The diagram shows a shape.

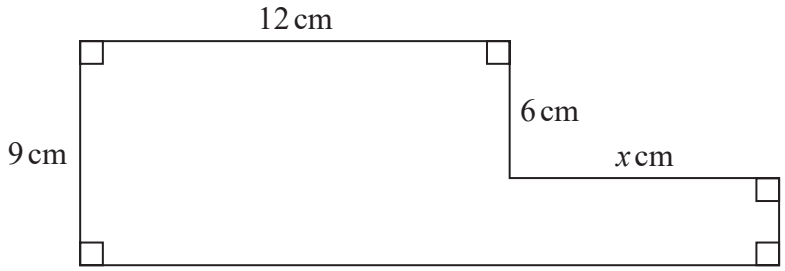


Diagram **NOT** accurately drawn

The shape has area 129 cm^2

Work out the value of x.

$x =$ .....

(Total for Question 23 is 4 marks)

24

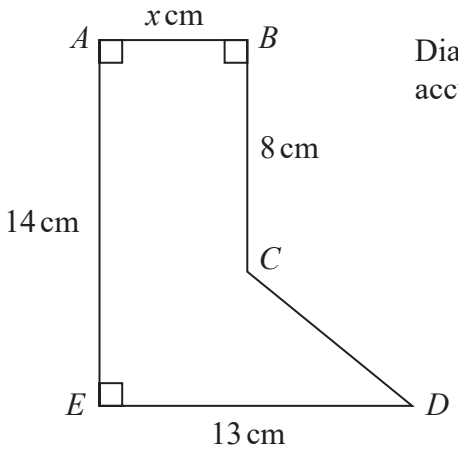


Diagram **NOT** accurately drawn

The diagram shows the shape *ABCDE*.

The area of the shape is 91.8 cm²

Work out the value of *x*.

x = ...

(Total for Question 24 is 4 marks)

25 The diagram shows rectangle *ABCD*

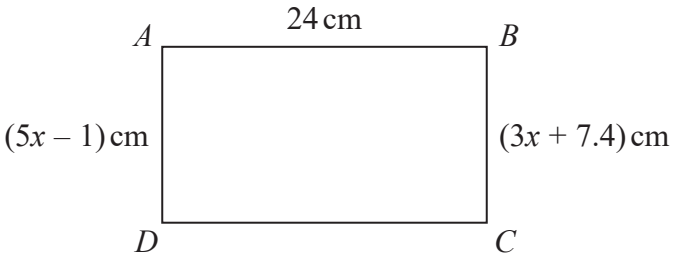


Diagram **NOT** accurately drawn

Work out the perimeter of the rectangle.
Show your working clearly.

..... cm

(Total for Question 25 is 4 marks)

26 The diagram shows an isosceles triangle.

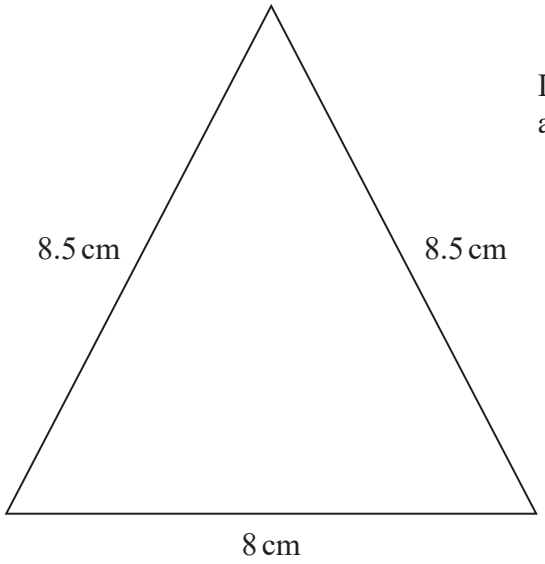


Diagram **NOT** accurately drawn

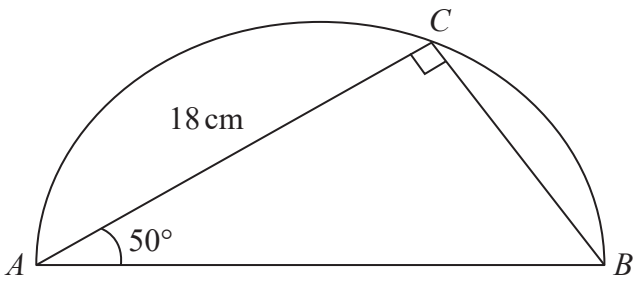
Work out the area of the triangle.

.....cm^2

(Total for Question 26 is 4 marks)

27 The diagram shows a triangle ABC inside a semicircle.

Diagram **NOT** accurately drawn



A, B and C are points on the semicircle.

AB is the diameter of the semicircle.

Angle $ACB = 90°$
Angle $BAC = 50°$
$AC = 18$ cm

Work out the perimeter of the semicircle.
Give your answer correct to 2 significant figures.

..... cm

(Total for Question 27 is 5 marks)

28 The diagram shows an isosceles triangle, with base length 24 cm.

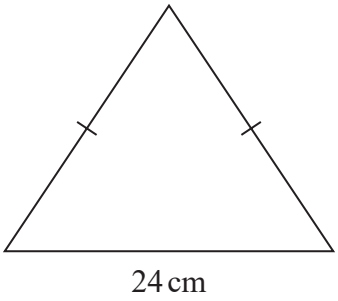


Diagram **NOT** accurately drawn

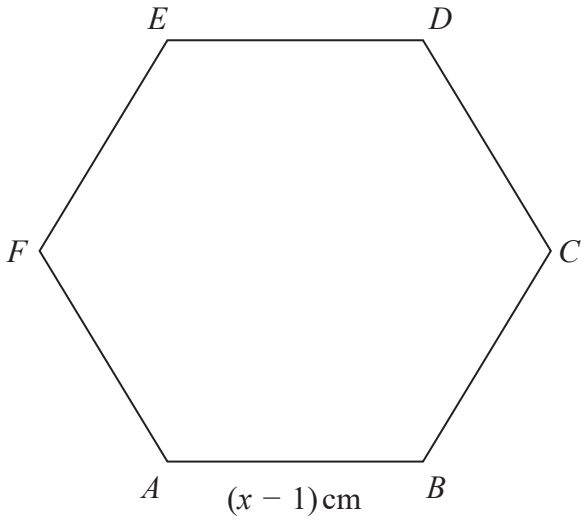
The perimeter of the triangle is 54 cm.

Work out the area of the triangle.

..... cm^2

(Total for Question 28 is 5 marks)

29 The diagram shows a regular hexagon, *ABCDEF*, and an isosceles triangle, *GHJ*.



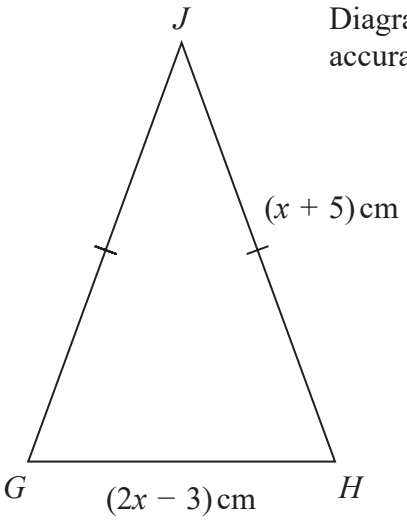


Diagram **NOT** accurately drawn

The perimeter of the hexagon is equal to the perimeter of the triangle.

Find the length of each side of the hexagon.
Show clear algebraic working.

..... cm

(Total for Question 29 is 5 marks)

30 A, B and C are points on a circle with centre O.

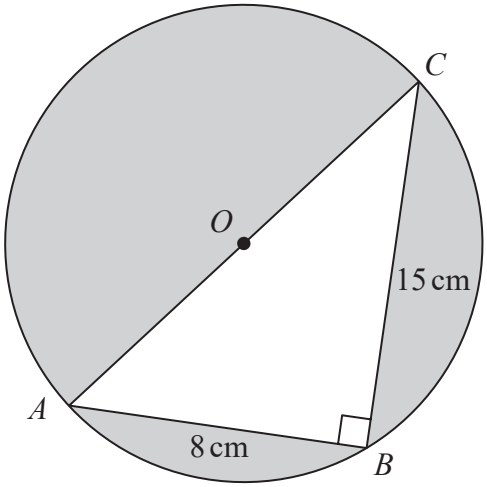


Diagram **NOT** accurately drawn

AOC is a diameter of the circle.

$AB = 8\,\text{cm}$ $BC = 15\,\text{cm}$

Angle $ABC = 90°$

Work out the total area of the regions shown shaded in the diagram.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 30 is 5 marks)

31 The diagram shows a quadrilateral *ABCD*

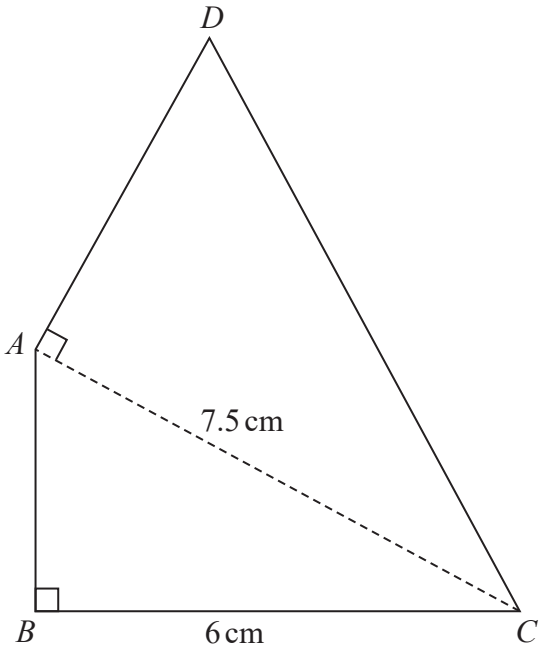


Diagram **NOT** accurately drawn

In the diagram, *ABC* and *DAC* are right-angled triangles.

$BC = 6\,\text{cm}$ $AC = 7.5\,\text{cm}$

The area of quadrilateral *ABCD* is $31.5\,\text{cm}^2$

Work out the length of *AD*

Question 27 continued.

..... cm

(Total for Question 31 is 6 marks)