1 Here is a hexagon *ABCDEF*.

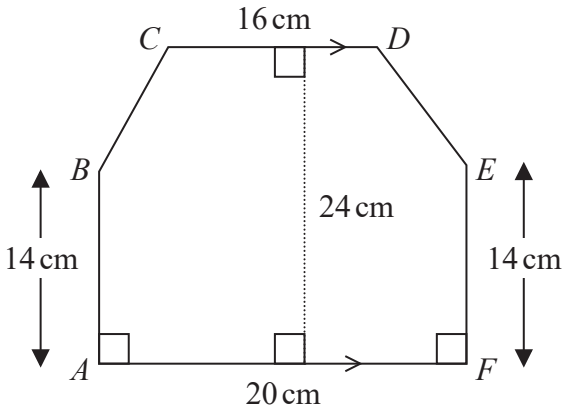


Diagram **NOT** accurately drawn

CD is parallel to *AF*.

Work out the area of hexagon *ABCDEF*.

..... cm^2

(Total for Question 1 is 4 marks)

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

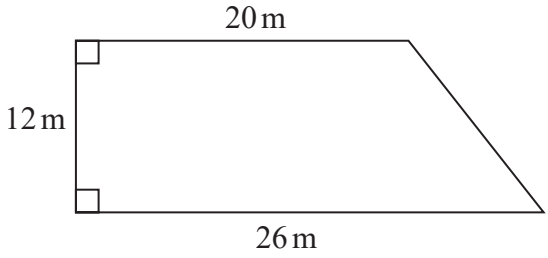


Diagram **NOT** accurately drawn

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 2 is 5 marks)

3 The diagram shows a quadrilateral *ABCD*

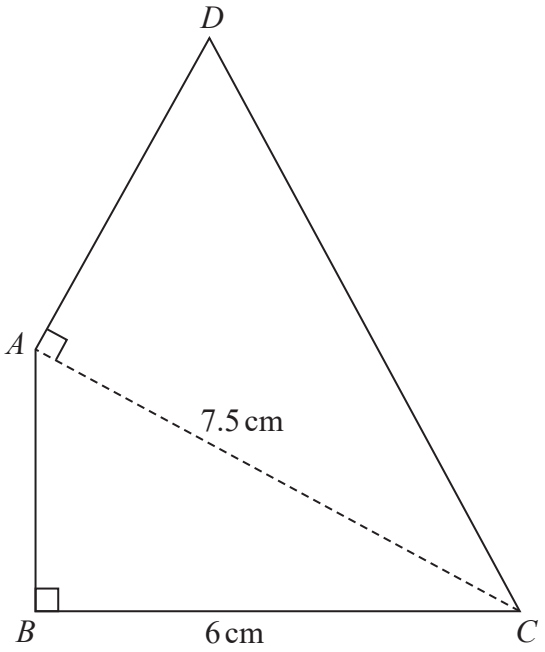


Diagram **NOT** accurately drawn

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*

..... cm

(Total for Question 3 is 6 marks)

4 The diagram shows the plan of a floor.

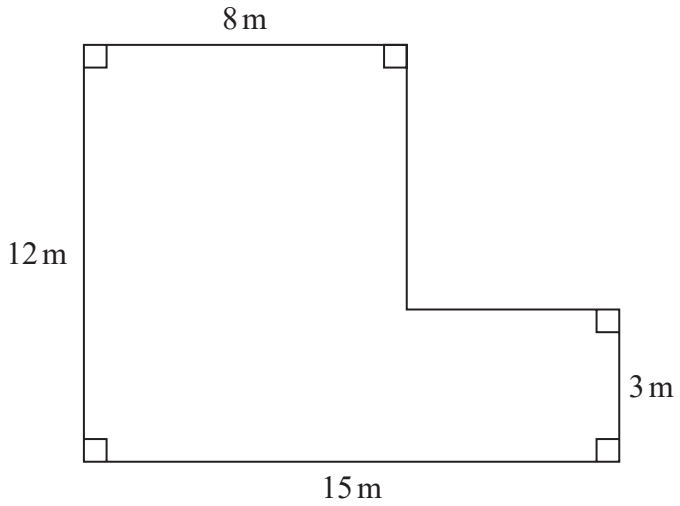


Diagram **NOT** accurately drawn

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 4 is 5 marks)

5 The diagram shows one face of a wall.
This face is in the shape of a pentagon with exactly one line of symmetry.

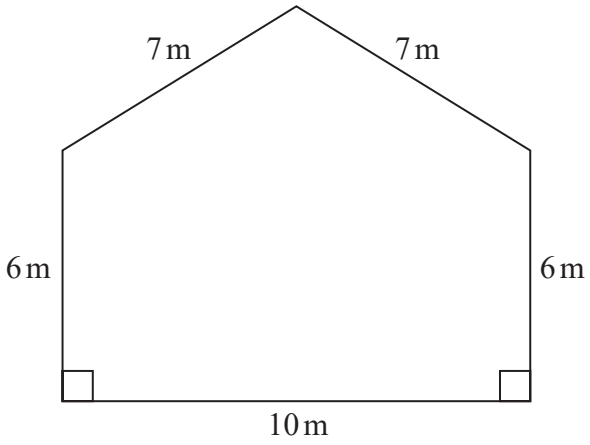


Diagram **NOT** accurately drawn

Omondi is going to paint this face of the wall once.
He has to buy all the paint that he needs to use.

The paint in each tin of paint Omondi is going to buy will cover $16\,m^2$ of the face of the wall.

Work out the least number of tins of paint Omondi will need to buy.
Show your working clearly.

.....

(Total for Question 5 is 5 marks)

6 The diagram shows Yuen's garden.

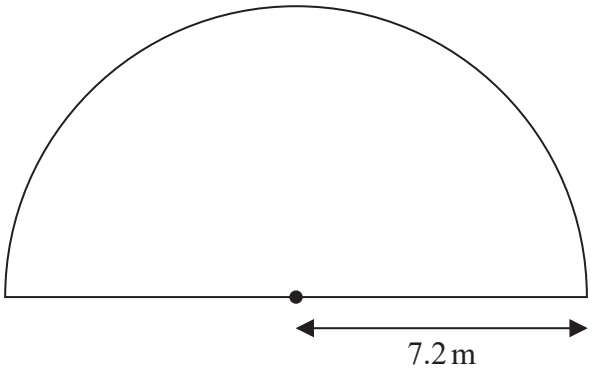


Diagram **NOT** accurately drawn

The garden is in the shape of a semicircle of radius 7.2 m.
Yuen is going to cover his garden with grass seed.

Yuen has 12 boxes of grass seed.
Each box of grass seed contains enough seed to cover 6 m^2 of the garden.

Has Yuen enough grass seed for his garden?
Show your working clearly.

(Total for Question 6 is 3 marks)

7 The region, shown shaded in the diagram, is a path.

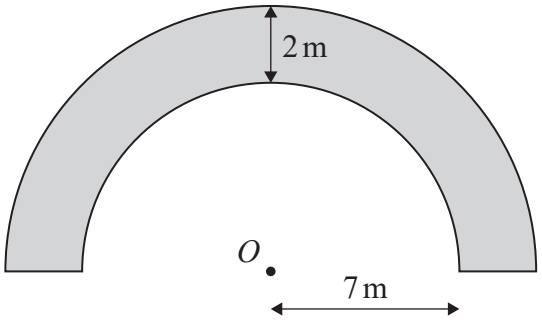


Diagram **NOT** accurately drawn

The boundary of the path is formed by two semicircles, with the same centre O, and two straight lines.

The inner semicircle has a radius of 7 metres.
The path has a width of 2 metres.

Work out the perimeter of the path.
Give your answer correct to one decimal place.

..... m

(Total for Question 7 is 3 marks)

8 Jonty has a storage container in the shape of a cuboid, as shown in the diagram.

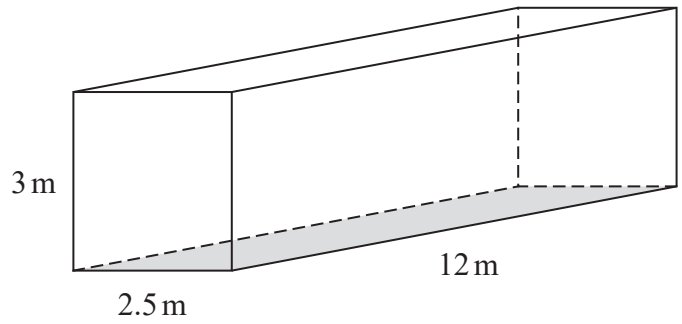


Diagram **NOT** accurately drawn

Jonty is going to paint the outside of his storage container, apart from the base which is shown shaded in the diagram.
He needs enough paint to cover the four sides and the top.

Each tin of paint covers an area of 15 m^2

The cost of each tin of paint recently increased by 10%
After the increase, the cost of each tin of paint is £26.95

Jonty says

"**Before** the increase, I could have bought enough paint for less than £200"

Show that Jonty is correct.
Show your working clearly.

(Total for Question 8 is 6 marks)

9 The diagram shows a shape.

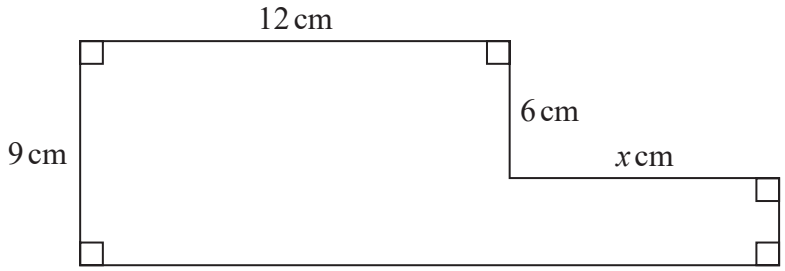


Diagram **NOT** accurately drawn

The shape has area 129 cm^2

Work out the value of x.

x = ...

(Total for Question 9 is 4 marks)

10

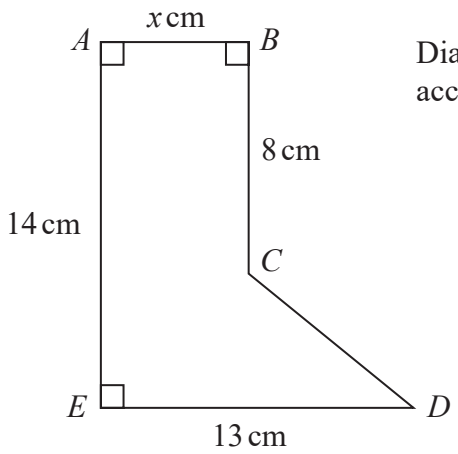


Diagram **NOT** accurately drawn

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 10 is 4 marks)

11 Calvin has 12 identical rectangular tiles.
He arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram below.

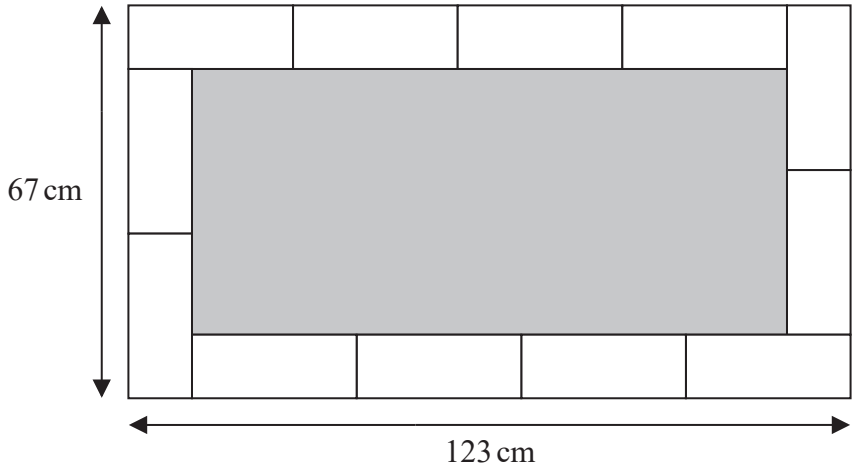


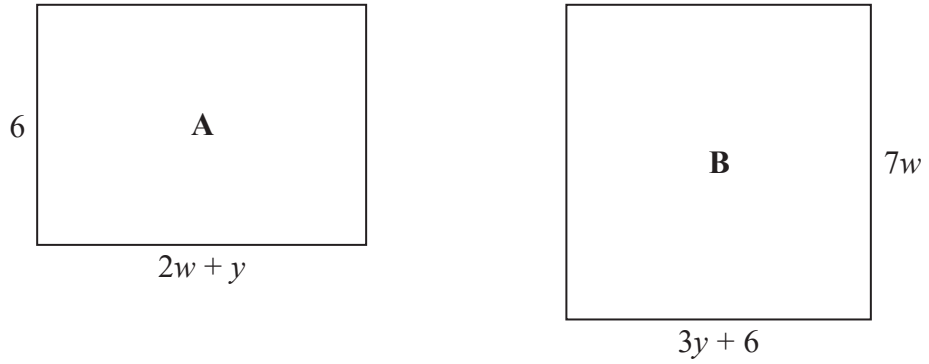
Diagram **NOT** accurately drawn

Work out the area of the shaded rectangle.

cm^2

(Total for Question 11 is 5 marks)

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



All measurements are in centimetres.

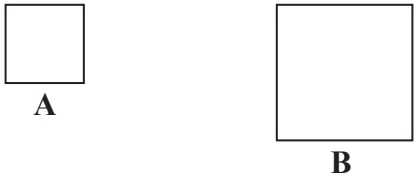
The area of rectangle **A** is equal to the area of rectangle **B**.

Find an expression for y in terms of w.

.....

(Total for Question 12 is 4 marks)

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



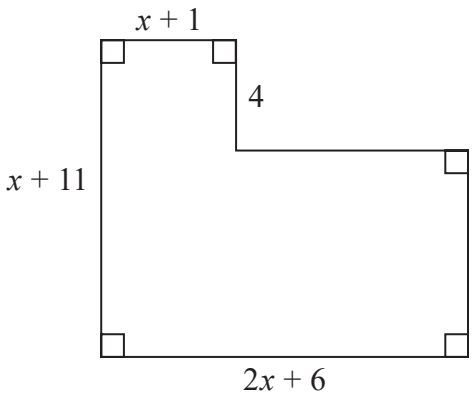
The length of each side of square **B** is 4 cm greater than the length of each side of square **A**.
The area of square **B** is 70 cm^2 greater than the area of square **A**.

Find the area of square **B**.
Give your answer correct to 3 significant figures.
You must show all your working.

..... cm^2

(Total for Question 13 is 4 marks)

14 Here is a shape with all its measurements in centimetres.

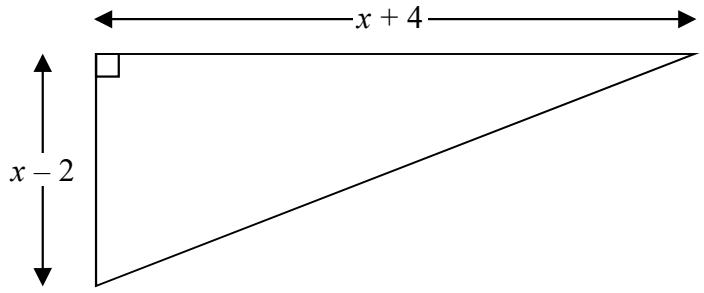


The area of the shape is A cm^2

Show that $A = 2x^2 + 24x + 46$

(Total for Question 14 is 3 marks)

15 The diagram shows a right-angled triangle.



All the measurements are in centimetres.

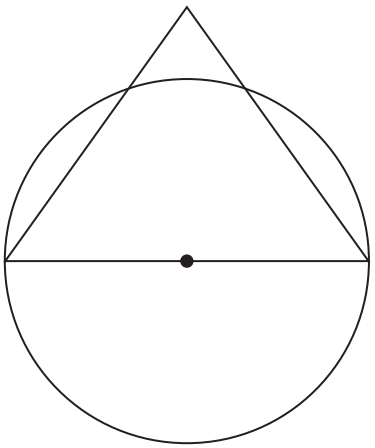
The area of the triangle is 27.5 cm^2

Work out the length of the shortest side of the triangle.
You must show all your working.

..... cm

(Total for Question 15 is 4 marks)

16 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 16 is 3 marks)

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

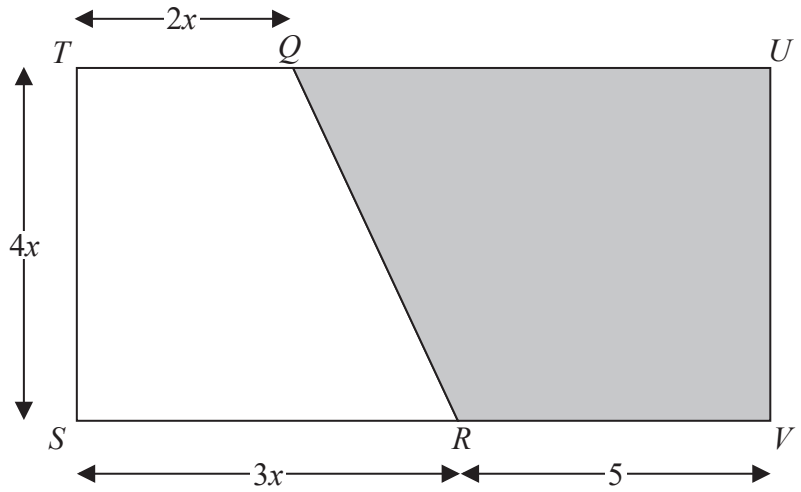
The area of the circle is 49 cm^2.

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

.....

(Total for Question 17 is 4 marks)

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

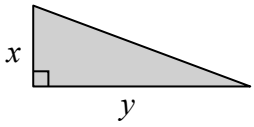


The area of trapezium *QUVR* is A cm^2

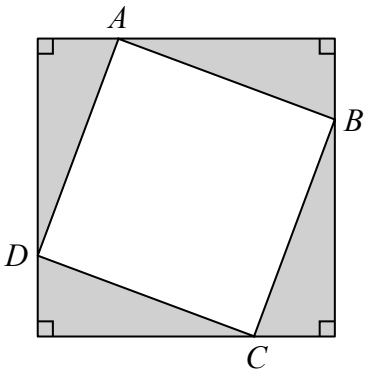
Show that $A = 2x^2 + 20x$

(Total for Question 18 is 3 marks)

19 Here is a right-angled triangle.



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

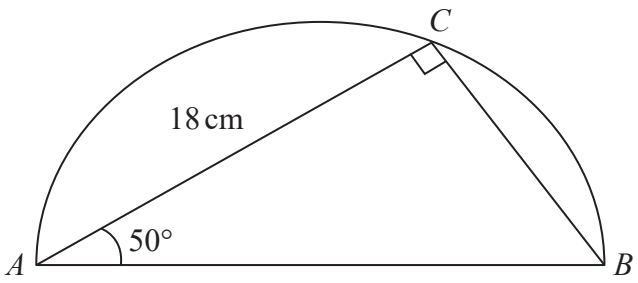


Show that the area of the square *ABCD* is $x^2 + y^2$

(Total for Question 19 is 3 marks)

20 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.

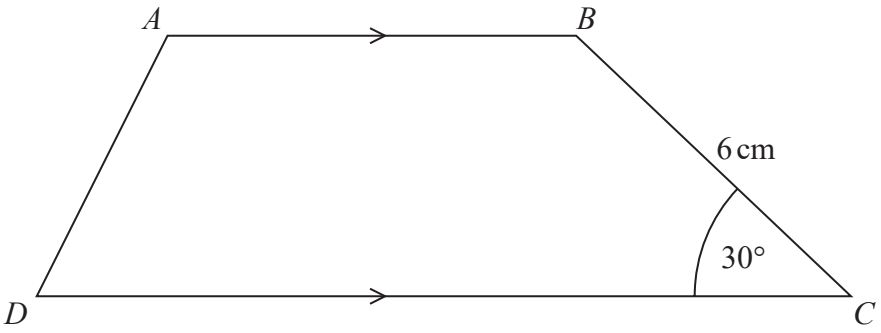
Angle $ACB = 90°$
Angle $BAC = 50°$
$AC = 18$ cm

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

..... cm

(Total for Question 20 is 5 marks)

21 Here is trapezium $ABCD$.



The area of the trapezium is $66\,cm^2$

the length of AB : the length of $CD = 2 : 3$

Find the length of AB.

..... cm

(Total for Question 21 is 5 marks)