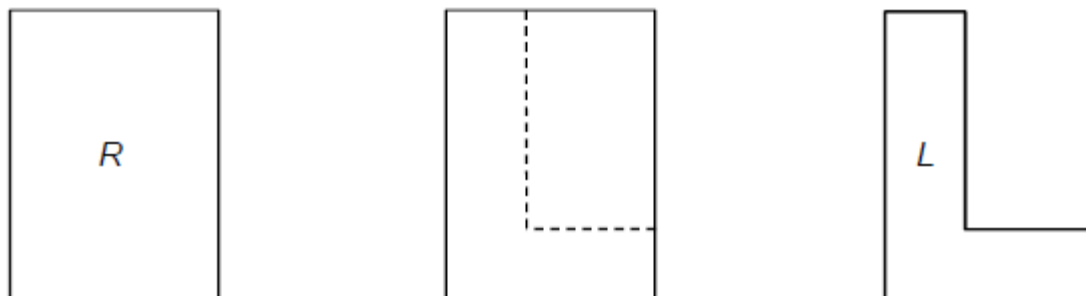**Q1.**

Shape *R* is a rectangle.

A smaller rectangle is cut from *R* to form shape *L*.

Not drawn accurately

Which **one** of these statements is true?

Tick a box.

The perimeter of *R* is **longer than** the perimeter of *L* ☐

The perimeter of *R* is the **same as** the perimeter of *L* ☐

The perimeter of *R* is **shorter than** the perimeter of *L* ☐

It is **not** possible to tell which perimeter is longer ☐

(Total 1 mark)

Q2.

A wheel has diameter 0.7 m

(a) Work out the circumference.

....

....

....

....

Answer .... m

(2)

(b)   Work out the number of complete turns when the wheel travels 1.6 km
      You **must** show your working.

....

....

....

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....

....

Answer ....
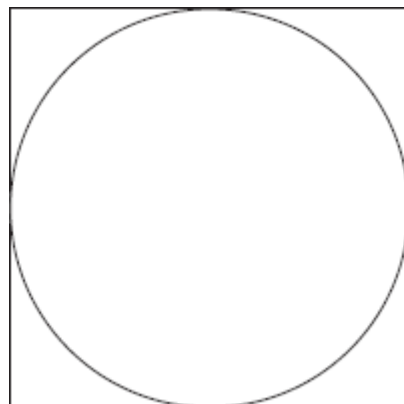
(4)
(Total 6 marks)

Q3.
The area of this square is 36 cm^2

Not drawn accurately

Work out the circumference of the circle.

....

....

....

....

....

Answer .... cm
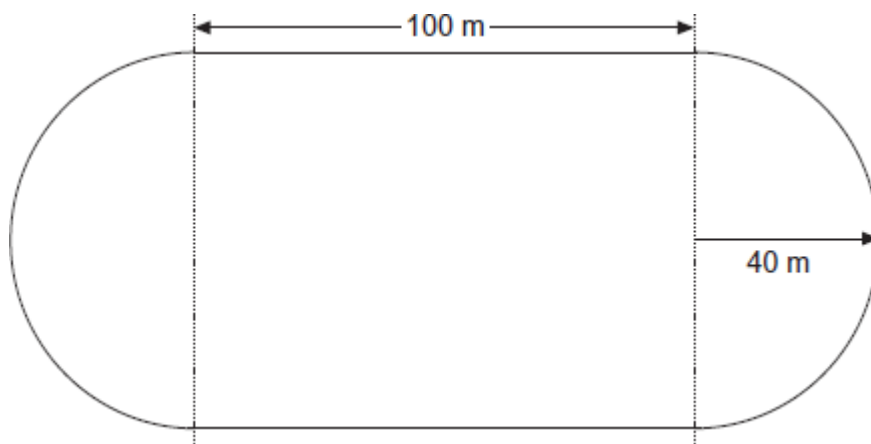
(Total 3 marks)

Q4.

A cycle track has two identical semi-circular ends and two straight sides as shown.

Not drawn accurately

A cyclist completes one lap.

Her average speed is 18 m / s
Her target time to complete one lap is 30 seconds.

Does she beat her target?
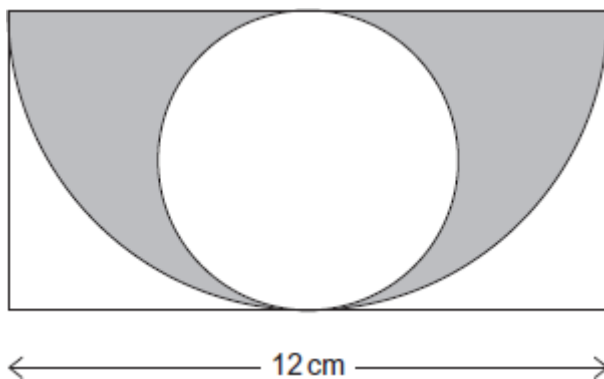You **must** show your working.

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Answer ....

(Total 4 marks)

Q5. The diagram shows a rectangle, a semi-circle and a circle.

Not drawn accurately

← 12 cm →

Work out the area of the **circle**.

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....

Answer ....cm^2

(Total 4 marks)

Q6.
The centre circle on a football pitch has radius 9.15 metres.

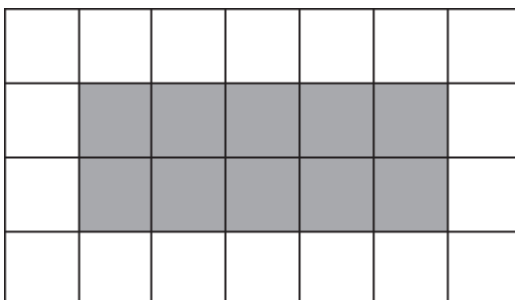Work out the circumference of the circle.

....

....

Answer .... metres

(Total 2 marks)

Q7.(a)   The diagram shows a rectangle on a centimetre grid.

The **perimeter** of this rectangle is 14 cm

Why is it **not** possible to draw a square of perimeter 14 cm using whole squares on a centimetre grid?

....

....

(1)

(b)   Here is another rectangle on a centimetre grid.
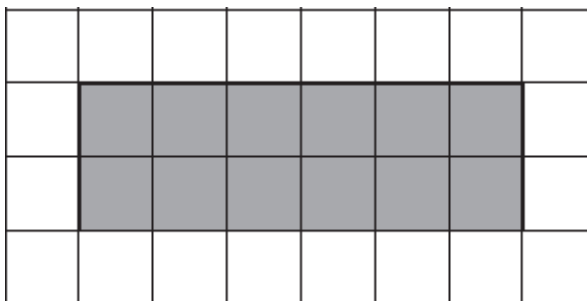
The **area** of this rectangle is 12 cm^2

Why is it **not** possible to draw a square of area 12 cm^2 using whole squares on a centimetre grid?

....

....
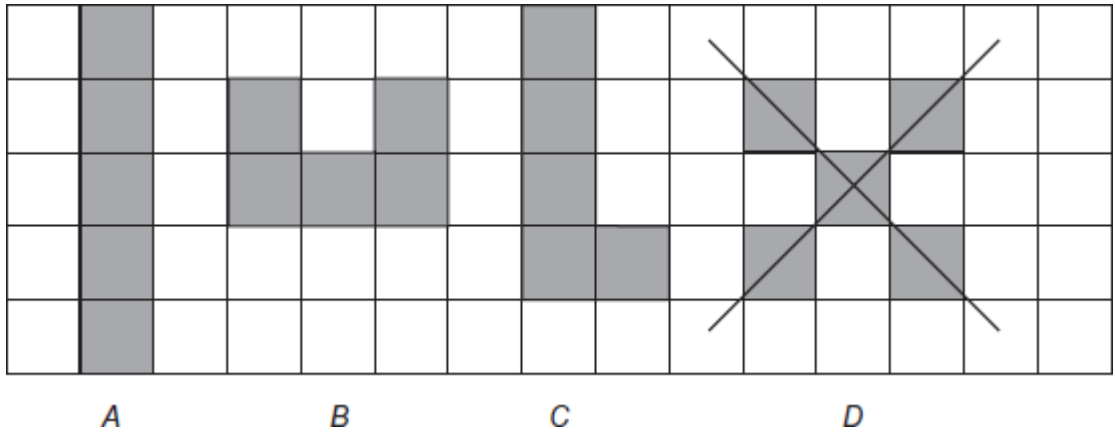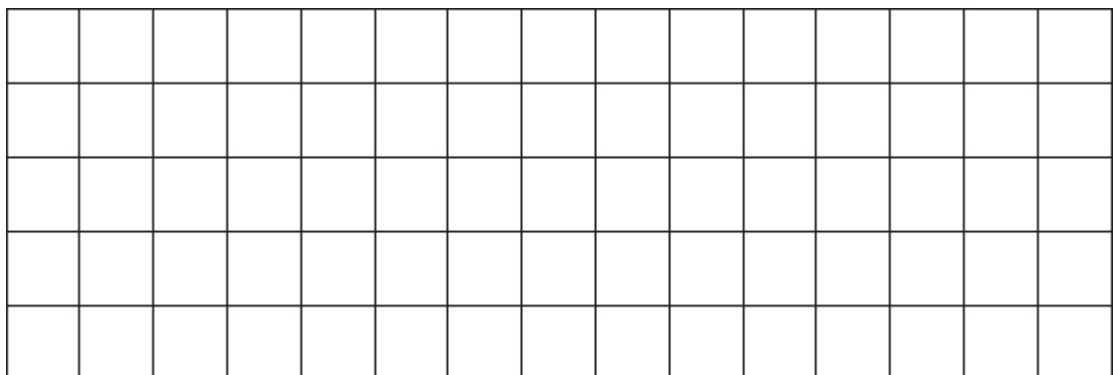
(1)

(c)　　A Pentomino is a shape that has five squares joined to each other.
　　　　The squares cannot overlap or be joined corner to corner.

　　　　A, B and *C* are Pentominoes.
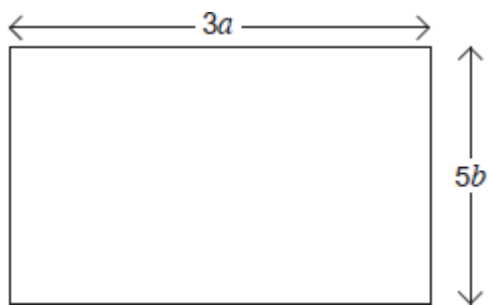　　　　*D* is **NOT** a Pentomino.

On this square grid, draw a different Pentomino that has

　　no lines of symmetry

　　　　　　and

　　rotational symmetry of order 2

(2)
(Total 4 marks)

Q8. The diagram shows a rectangle.

(a)   Write down an expression for the **perimeter** of the rectangle.

Simplify your answer.

....

Answer ....

(2)

(b)   Write down an expression for the **area** of the rectangle.

Simplify your answer.

....

Answer ....

(2)

(c)   You are given that a and b are prime numbers.
The **area** of the rectangle is 315 cm^2

Work out the values of a and b.

Answer .... cm   and   .... cm
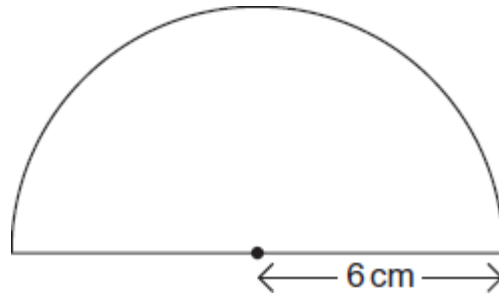
(2)
(Total 6 marks)

Q9. Work out the area of a semi-circle of radius 6 cm.
Give your answer in terms of π.

Not drawn
accurately

....

....

....

Answer .... cm^2

(Total 2 marks)

Q10. The perimeter of the rectangle is 37 cm.

Not drawn
accurately

$x + 3$
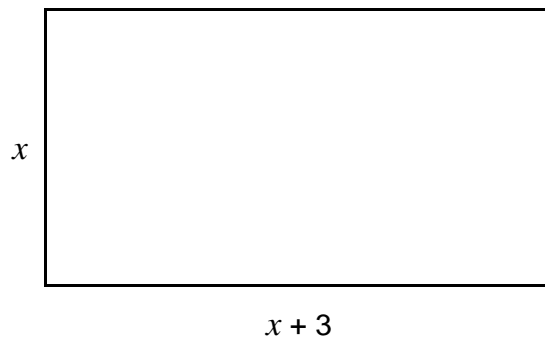
Work out the value of x.

....

....

....

....

....

$x =$ .... cm

(Total 3 marks)

Q11.

(a)   A jeweller has a piece of silver in the shape of a trapezium.

Not drawn accurately

40 mm

16 mm

24 mm
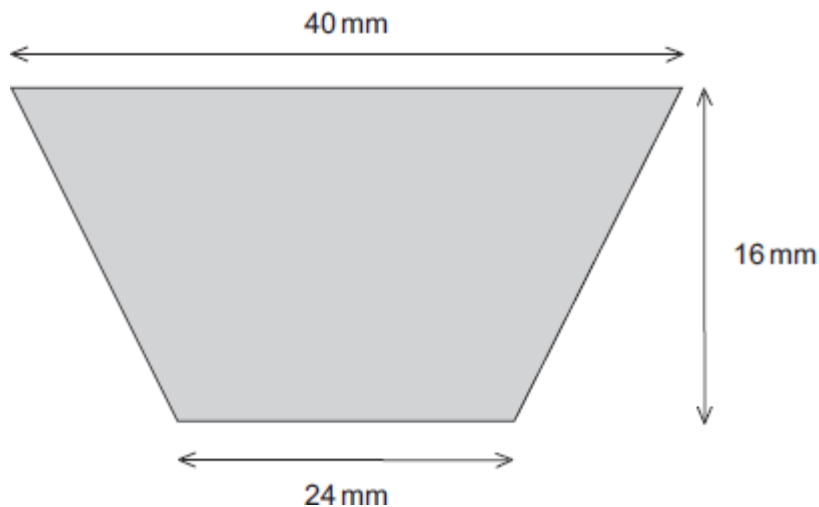
Work out the area of the trapezium.

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....

....

Answer .... mm^2

(2)

(b)   She cuts out a circle of radius 4 mm from the trapezium to make a pendant.

Not drawn accurately

)
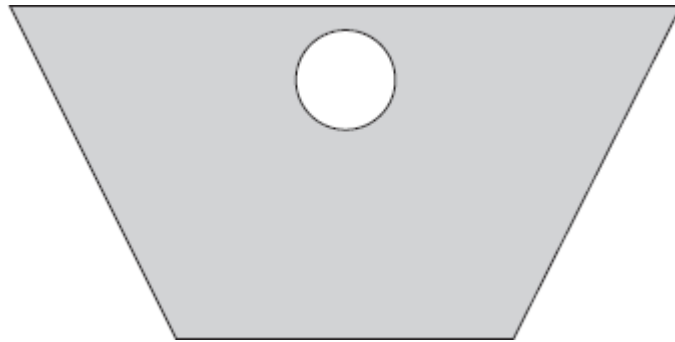
Work out the area of the circle.

....

....

Answer .... mm^2

(2)

(c)   The silver from the circle is waste material.

What percentage of silver does the jeweller waste making the pendant?

....

....

....

Answer .... %

(2)
(Total 6 marks)

Q12. The perimeter of this L-shape is 56 cm.

Not drawn accurately

Set up and solve an equation to work out the value of x.

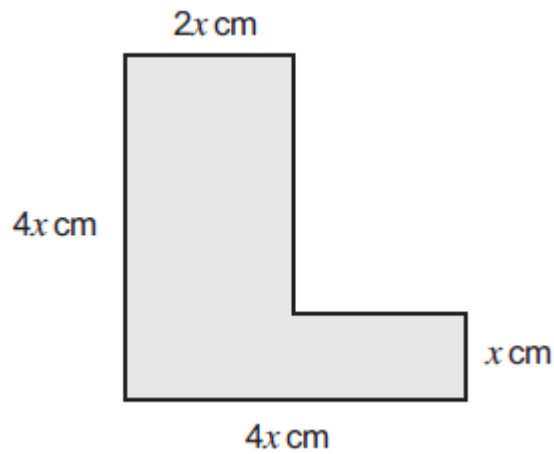..

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x = ...

(Total 4 marks)

Q13. Work out the circumference of a circle, radius 4.2 cm.
Give your answer to 1 decimal place.

....

....

....

Answer .... cm

(Total 3 marks)

Q14. Work out the area of a circle, radius 3.5 cm.
Give your answer to 1 decimal place.

....

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....

Answer .... cm^2

(Total 3 marks)

Q15. A circle is drawn inside a square as shown.
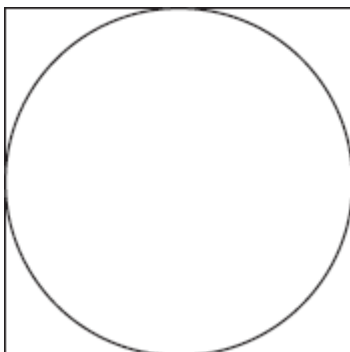
Show that the area of the circle is more than 75% of the area of the square.

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(Total 4 marks)