testbase

New Document 1

Name: _____

Class: _____

Date: _____

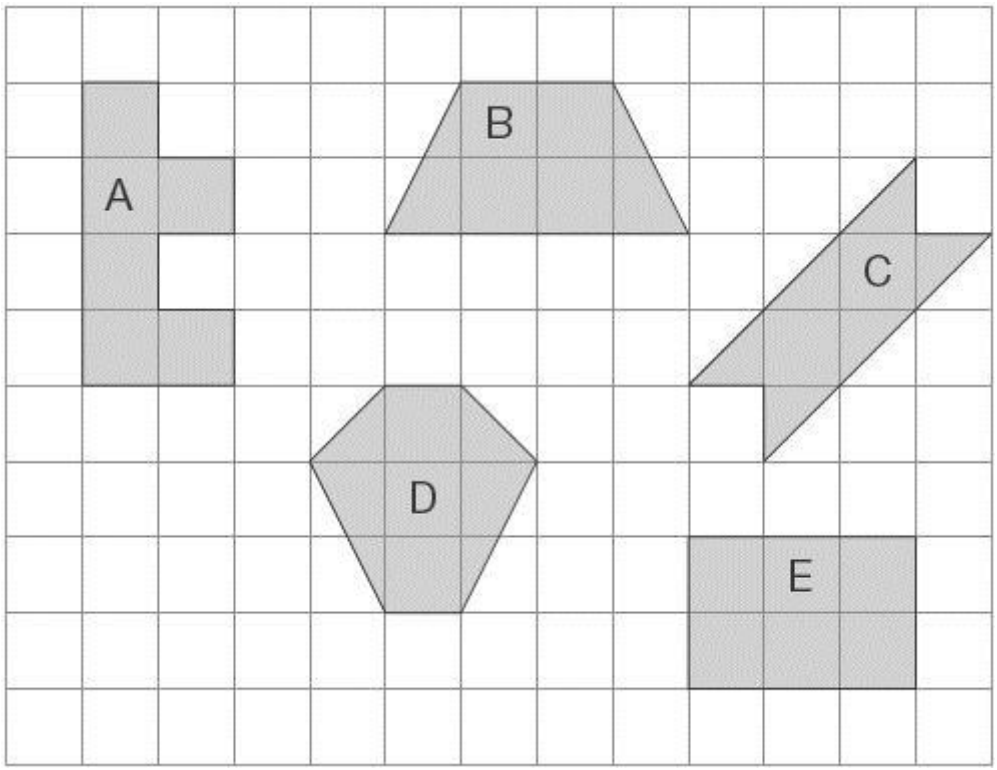
Time: **38 minutes**

Marks: **37 marks**

Comments:

Q1.

Here are some shapes on a 1cm square grid.



What is the **perimeter** of shape A?

cm

1 mark

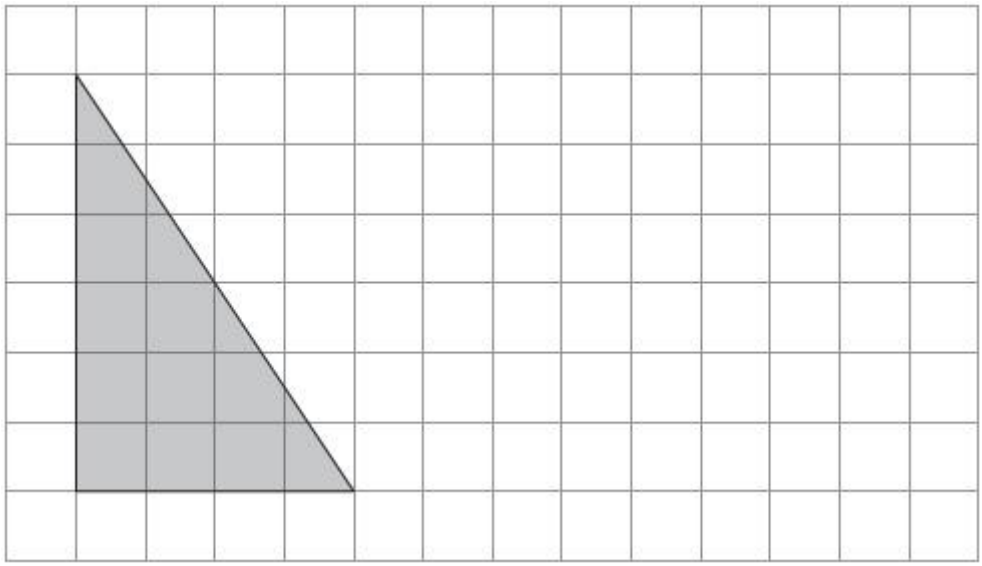
Write the letter of the shape that has the **smallest area**.

1 mark

Q2.

Draw a rectangle on the grid that has **half** the area of the shaded triangle.

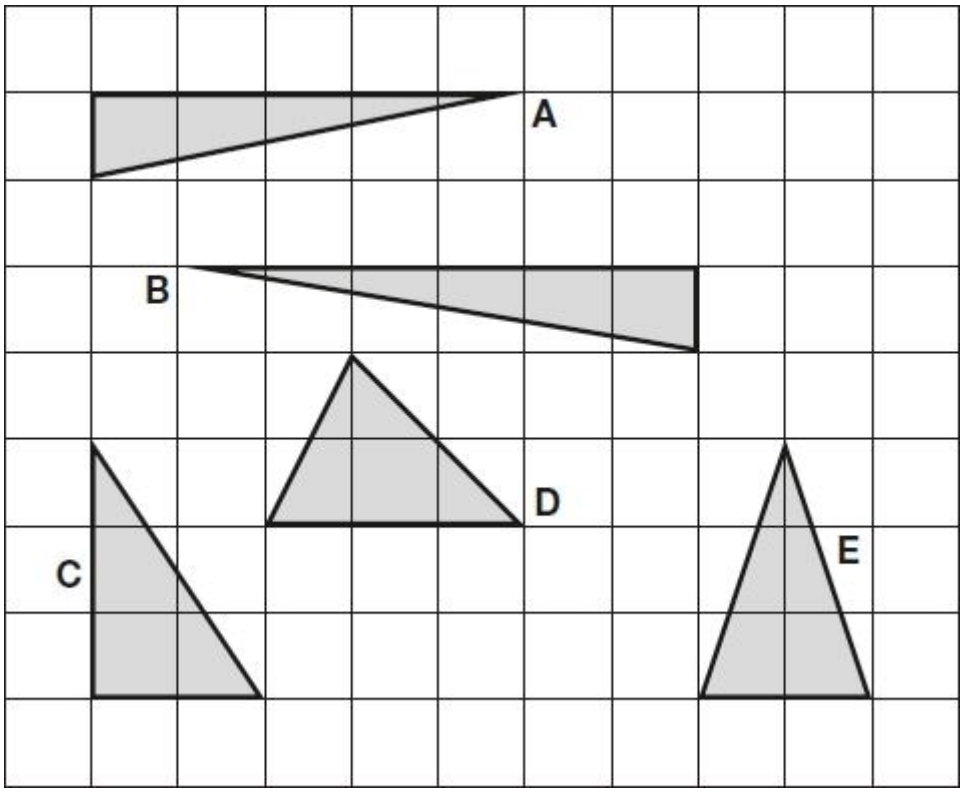
Use a ruler.



1 mark

Q3.

Here are five triangles on a square grid.



Four of the triangles have the same area.

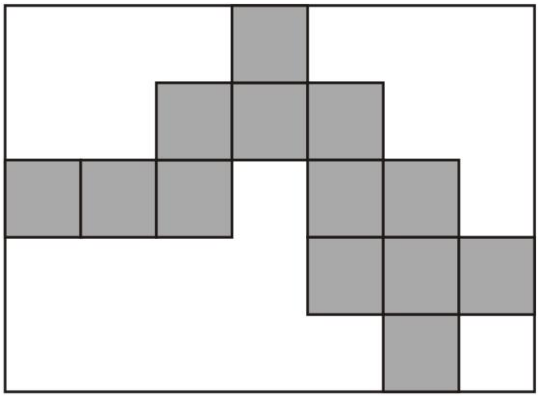
Which triangle has a **different** area?

_____

1 mark

Q4.

Here is a rectangle with 13 identical shaded squares inside it.

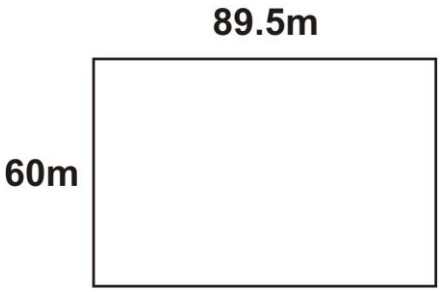


What fraction of the rectangle is shaded?

1 mark

Q5.

A field measures 89.5 m by 60 m.



What is the perimeter of the field?

m

1 mark

Q6.

The area of a rectangle is 16 cm^2.

One of the sides is 2 cm long

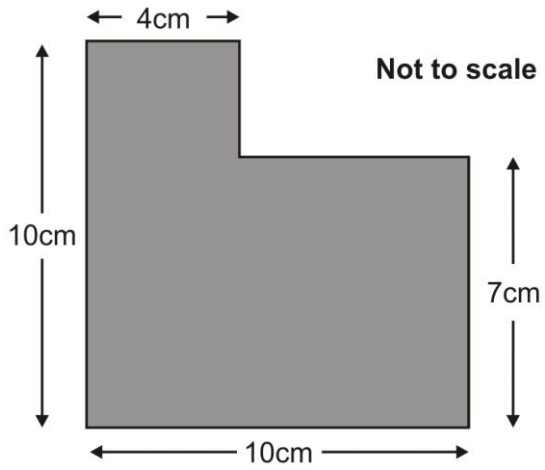
What is the perimeter of the rectangle?

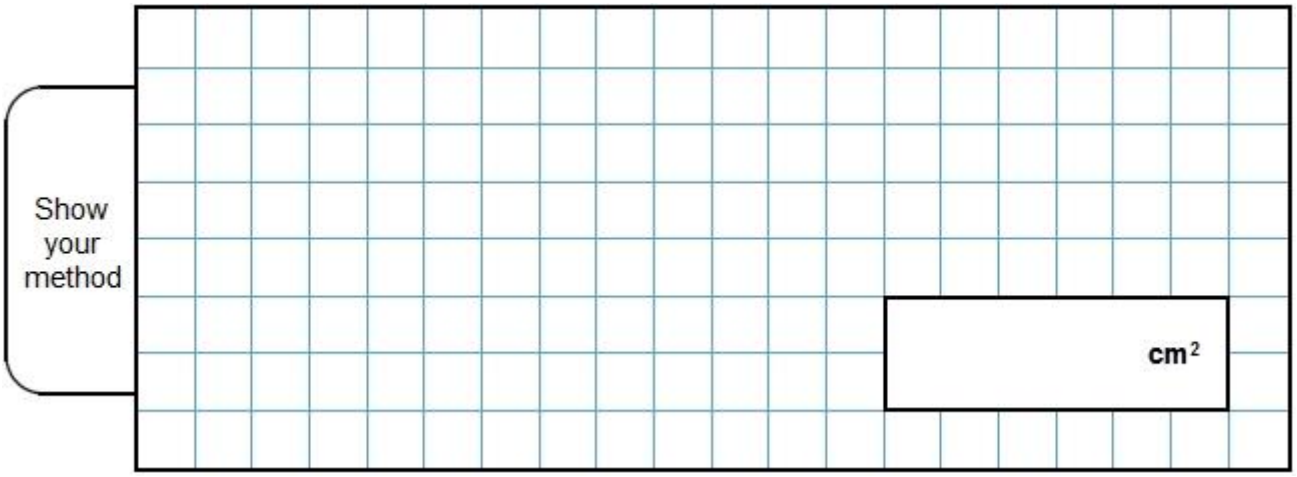
cm

1 mark

Q7.

What is the **area** of this shape?





2 marks

Q8.

Here is a rectangle with a width of 15.7 centimetres.

The **perimeter** of this rectangle is 85 centimetres.

Calculate the length of the rectangle.

Show your method

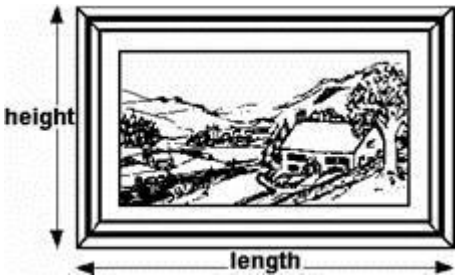
cm

2 marks

Q9.

Here are some picture frame sizes.

height in cm	10	12	14	16
length in cm	16	20	24	28



For each frame, the length is **twice** the height, **subtract 4**

What is the **length** of a frame which has a **height** of **36 cm**?

Show your method

cm

2 marks

For each frame, the length **(L)** is **twice** the height **(H)**, **subtract 4**

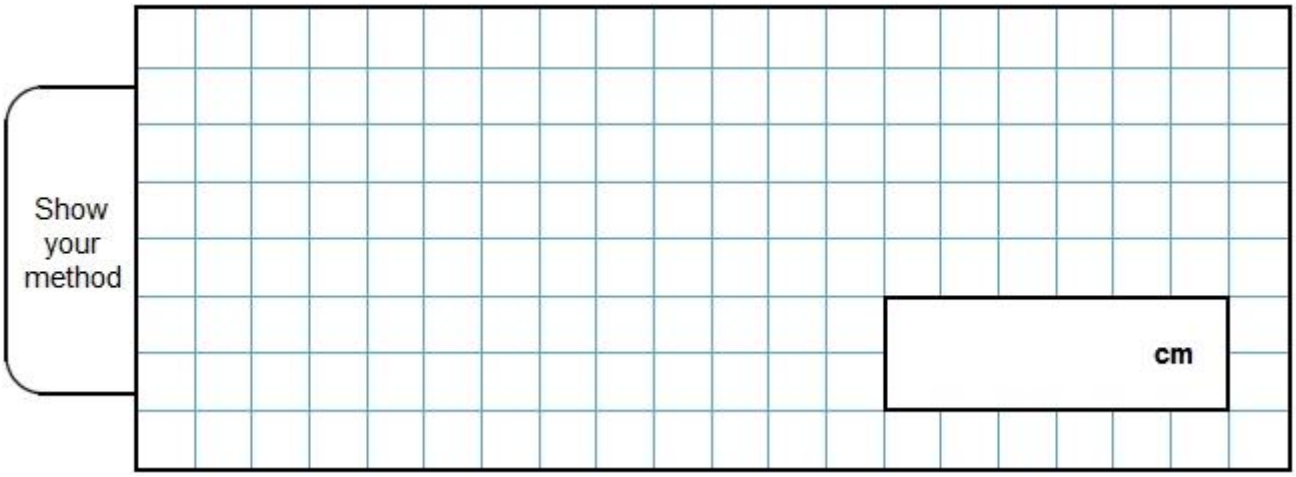
Write this in symbols.

L =

2 marks

A **new** frame has its length **twice** its height.
It is made with 126cm of wood.

What is the **length** of this frame?



2 marks

Q10.

An isosceles triangle has a perimeter of 12 cm.

One of its sides is 5 cm.

What could the length of each of the other two sides be?

Two different answers are possible.

Give **both** answers.

cm and cm

cm and cm

2 marks

Q11.

Rectangle **ABCD** has a perimeter of **24 centimetres**.

Sides AB and DC are **twice as long** as sides AD and BC.

Not actual size

Calculate the length of side **AD**.

Do **not** use a ruler.

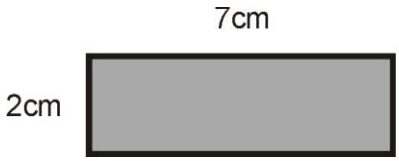
cm

1 mark

Q12.

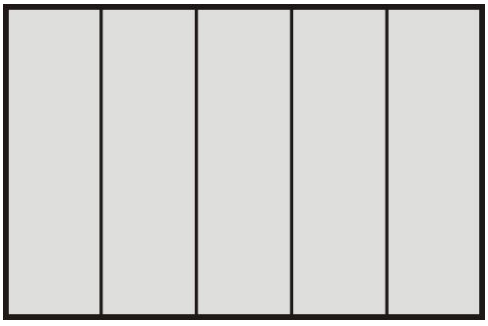
Lara has some identical rectangles.

They are 7 centimetres long and 2 centimetres wide.



Not actual size

She uses **five** of her rectangles to make the large rectangle below.



What is the **perimeter** of the large rectangle?

cm

1 mark

What is the **area** of the large rectangle?

cm

1 mark

Q13.

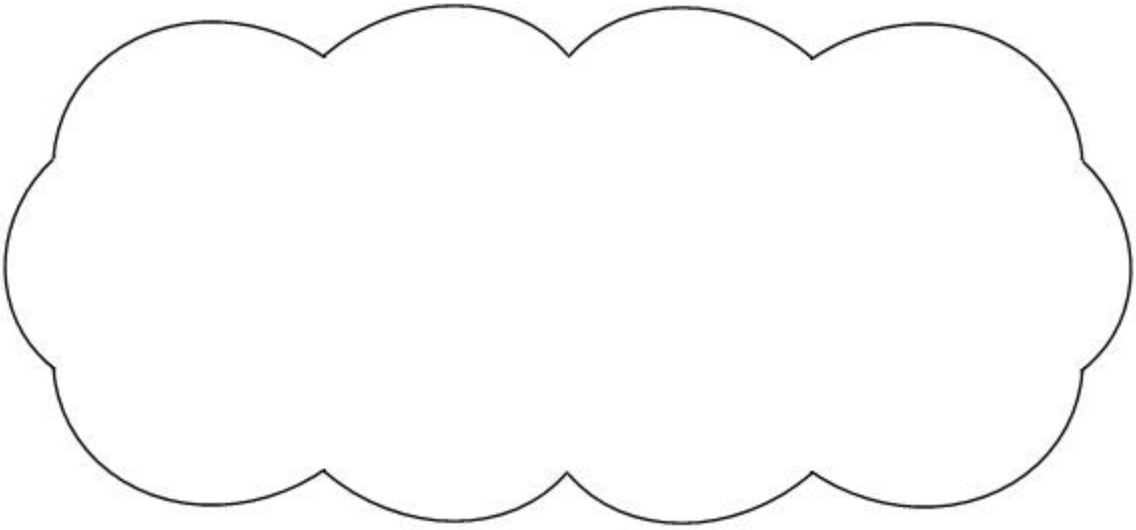
Megan says,

'If two rectangles have the same perimeter, they must have the same area.'

Is she correct?
Circle **Yes** or **No**.

Yes / No

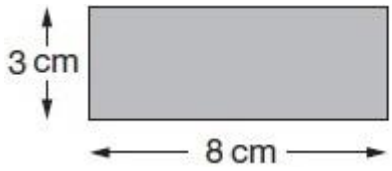
Explain how you know.



1 mark

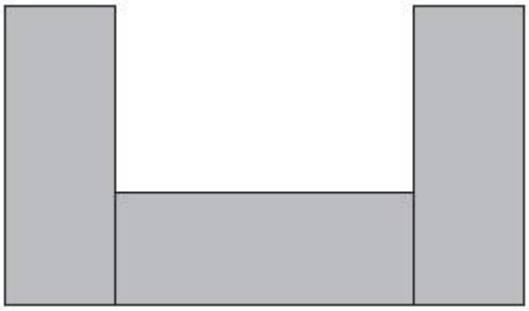
Q14.

Alfie has some rectangles.

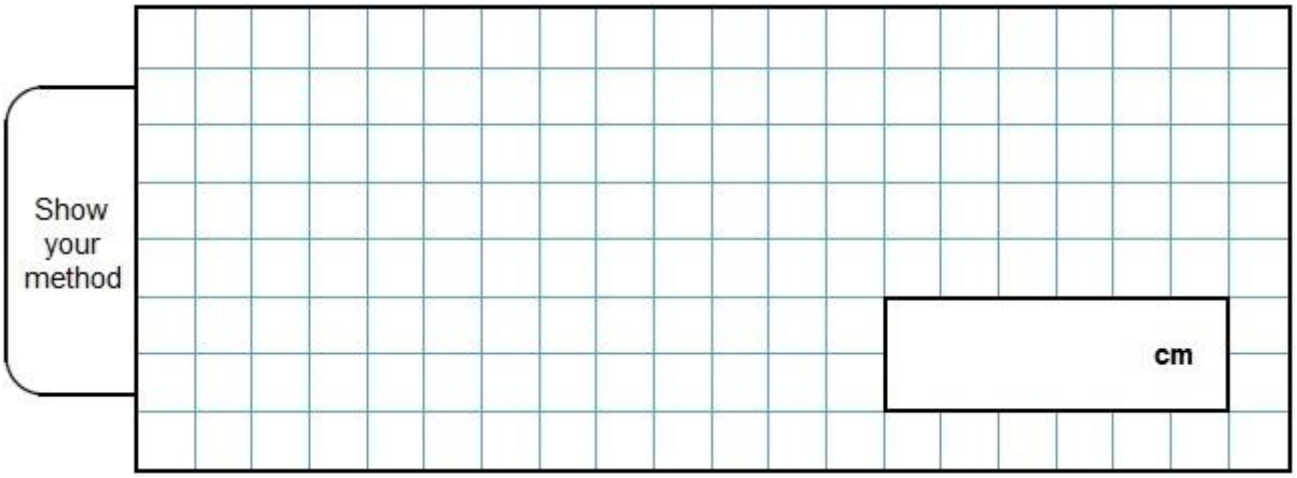


Not actual size

He makes this shape using three of the rectangles.



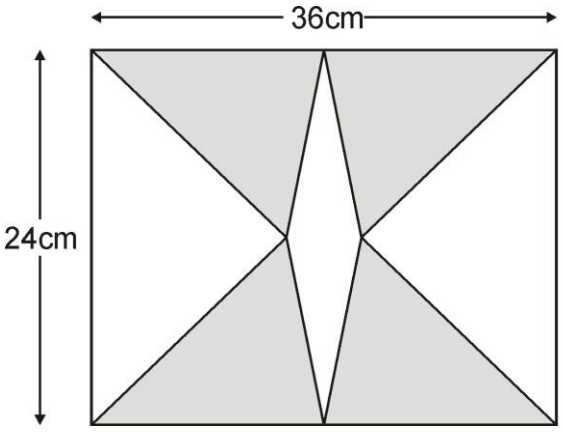
What is the **perimeter** of Alfie's shape?



2 marks

Q15.

The diagram shows **4 identical shaded triangles** in a rectangle.



Not actual size

The rectangle measures **36 centimetres** by **24 centimetres**.

Calculate the **area** of **one shaded triangle**.

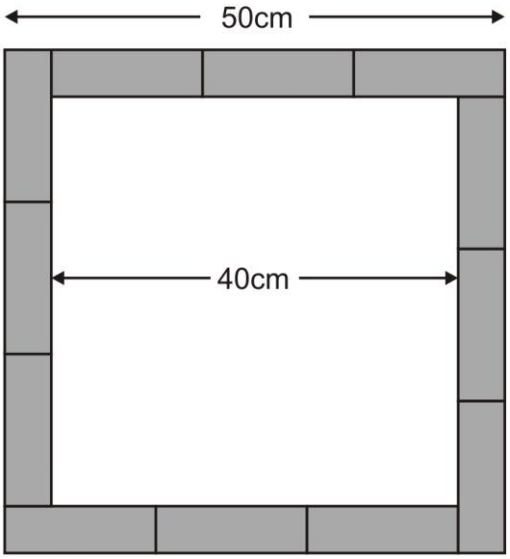
Show your method

cm²

2 mark

Q16.

Twelve rectangles, all the same size, are arranged to make a **square**, as shown in the diagram.



Calculate the **area** of **one** of the rectangles.

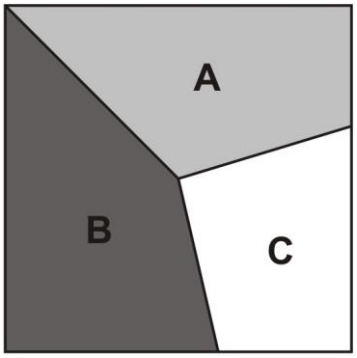
Show your method

cm²

2 mark

Q17.

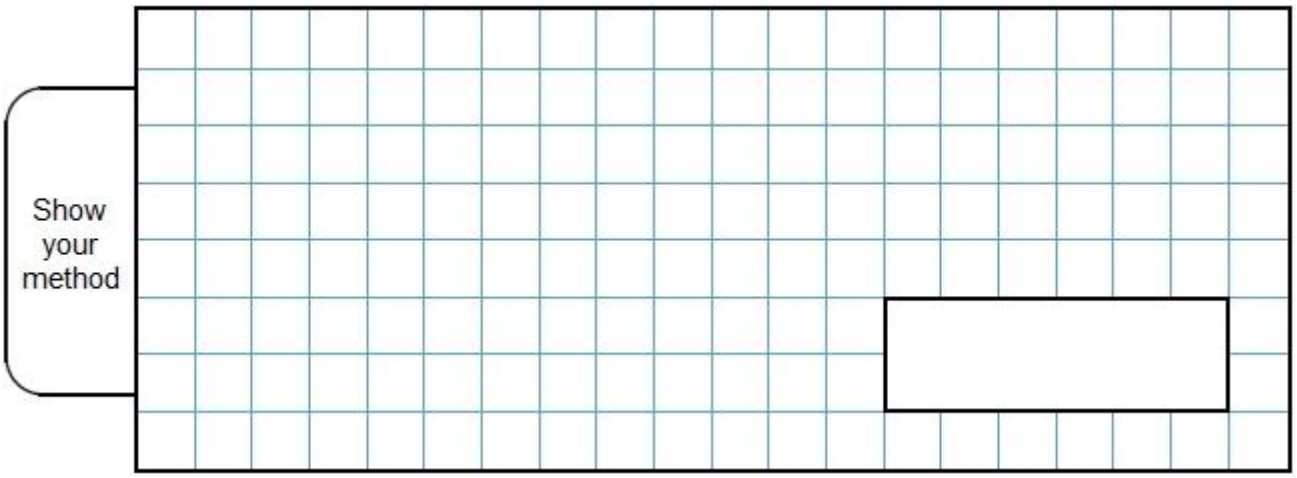
This square is divided into three parts.



Part **A** is $\frac{1}{3}$ of the area of the square.

Part **B** is $\frac{2}{5}$ of the area of the square.

What fraction of the area of the square is part **C**?

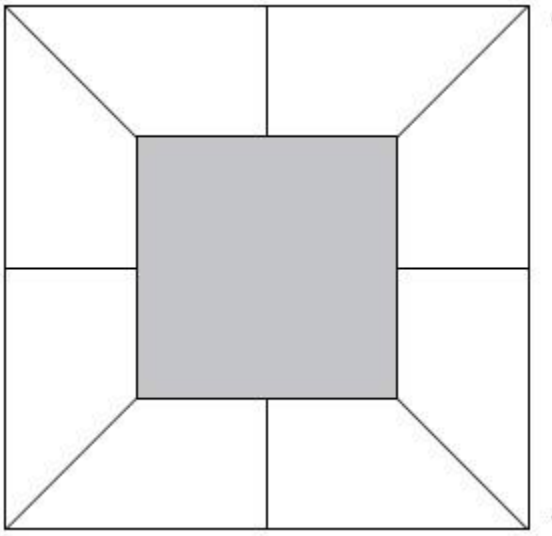


2 marks

Q18.

The diagram shows a square of side length 12 cm.

Inside the square are 8 congruent trapeziums and a shaded square.



Not full size

The **side length** of the shaded square is **6 cm**.

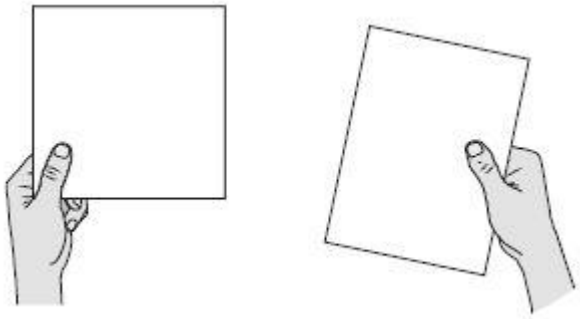
What is the area of one of the trapeziums?

Show your method

cm ^{2}

3 marks

Q19.



A square tile measures 20 cm by 20 cm.

A rectangular tile is 3 cm **longer** and 2 cm **narrower** than the square tile.

What is the **difference in area** between the two tiles?

Show your method

cm^2

3 marks

Mark schemes

Q1.

(a) 14

1

(b) C

Accept 5

1

[2]

Q2.

A rectangle with area 6 cm^2

A rectangle must be drawn but need not be shaded.

[1]

Q3.

A

Accept alternative unambiguous positive indications of the correct triangle, e.g. 2 $\frac{1}{2}$ or 2.5.

[1]

Q4.

$\frac{13}{35}$

U1

[1]

Q5.

299

[1]

Q6.

20 (cm)

[1]

Q7.

Award **TWO** marks for the correct answer of 82

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

(4 × 10) + (7 × 6)
OR
(10 × 10) – (3 × 6)

Answer need not be obtained for the award of the mark.

Up to 2

[2]

Q8.

Award **TWO** marks for the correct answer of 26.8 cm

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

85 ÷ 2 – 15.7

OR

85 – (15.7 × 2) = wrong answer

wrong answer ÷ 2

OR

85 – (15.7 × 2) = 53.6

*Award **ONE** mark for an answer of 53.6 **OR** for 53.6 shown with no evidence of an incorrect method.*

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[2]

Q9.

(a) Award **TWO** marks for correct answer of 68cm.
If answer is incorrect award **ONE** mark if any method is used which shows evidence of doubling 36 **AND** subtracting 4, eg:

- 30 + 6 × 2 – 4

Up to 2

(b) Award **TWO** marks for expressions such as:

- L = 2H – 4
- L = 2(H – 2)
- L = H + H – 4

If incorrect award **ONE** mark for evidence of multiplication of H by 2, eg: **2H H2 H × 2 2 × H 2.H H.2**
or **ONE** mark for evidence of subtraction of 4,
eg: **L = H – 4**

*Do **not** accept **L = × 2 – 4 = H***

*Do **not** award marks for a repeat of the formula in words as given in the question.*

Up to 2

(c) Award **TWO** marks for 42 cm, even if there are errors in the working.

If answer is incorrect, award **ONE** mark for evidence that the relationship “length is twice the height” has been used, eg:

- 2H + 4H = 126

- H + 2H + H + 2H = 126
- 20 + 40 + 20 + 40 = 120

The answers may be implicit, eg:

- *21 + 42 + 21 + 42 = 126*
  (Two marks)
- *126 ÷ 6 = 21 × 2 = 42*
  (Two marks)
- *126 ÷ 3 (answer incomplete*
  One mark)

Up to 2

[6]

Q10.

Award **TWO** marks for two different answers as shown:

5	and	2	**or**	2	and	5

AND

3.5	and	3.5

If the answer is incorrect, award **ONE** mark for any one of the above answers.

The two answers may be given in either order.

***Do not** accept '5 and 2' **AND** '2 and 5' for two marks.*

Up to 2

[2]

Q11.

4

U1

[1]

Q12.

(a) 34

1

(b) 70

1

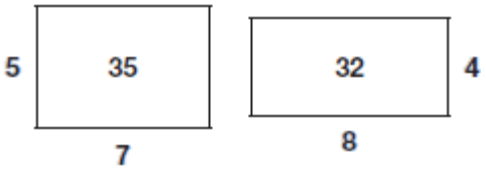
[2]

Q13.

Indicates No and gives a correct explanation that includes indicating two different areas, eg:

- A rectangle with sides 6 cm by 2 cm has a perimeter of 16 cm and an area of 12 cm^2 but a rectangle with sides 5 cm and 3 cm has the same perimeter of 16 cm but it has an area of 15 cm^2 which is different so she is not correct
- A square with sides 3 cm by 3 cm and a rectangle with sides 4 cm by 2 cm have the same perimeter of 12 cm but they have different areas of 9 cm^2 and 8 cm^2

Accept minimally acceptable explanation, eg:

- *6 × 2 = 12, 5 × 3 = 15*
- 

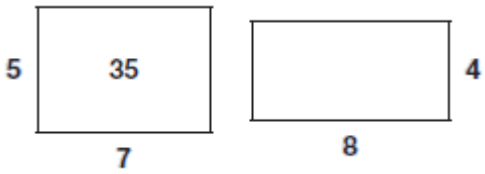
! Ignore any incorrect units given in an otherwise correct explanation, eg:

- *6^2 for 6 cm^2*

! Indicates Yes, or no decision made, but explanation clearly correct

Condone, provided the explanation is more than minimal

***Do not accept** Incomplete or incorrect explanation, eg:*

- *6 × 2, 5 × 3*
- *Two rectangles, one with sides 6 cm by 5 cm and one with sides 8 cm by 3 cm have the same perimeter of 22 cm but they don't have the same area*
- 

[1]

Q14.

Award **TWO** marks for the correct answer of 54

If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg

8 × 4 = 32

3 × 4 = 12

5 × 2 = 10

32 + 12 + 10 = wrong answer

*Working must be carried through to reach an answer for the award of **ONE** mark.*

Up to 2

[2]

Q15.

Award **TWO** marks for the correct answer of 108 cm^2

If the answer is incorrect award **ONE** mark for evidence of an appropriate method, eg

36 ÷ 2 = 18

24 ÷ 2 = 12

area = ½ × 12 × 18

Calculation need not be completed for the award of the mark.

***No mark** is awarded for the result of calculating 12 × 18 only.*

Up to 2

[2]

Q16.

Award **TWO** marks for the correct answer of 75

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

width = (50 – 40) ÷ 2
length (50 – 5) ÷ 3
area = 5 × 15
OR (50^2 – 40^2) ÷ 12

Calculation need not be completed for the award of the mark.

Up to 2

[2]

Q17.

Award **TWO** marks for the correct answer of $\frac{4}{15}$

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

$\frac{1}{3} = \frac{5}{15}$

$\frac{2}{5} = \frac{6}{15}$

$C = \frac{15 - 5 - 6}{15}$

Answer need not be obtained for the award of the mark.

Up to 2

[2]

Q18.

$13\frac{1}{2}$ or equivalent

3

or

Shows or implies a complete correct method with not more than one computational error

The most common correct methods:

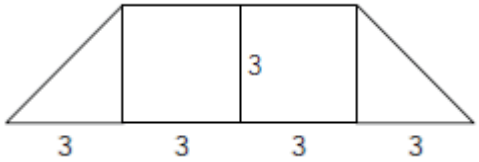
Find the total area of the trapezia and divide by 8
eg
- $(12^2 - 6^2) \div 8$
- 144 − 36 = 94 *(error)*
  94 ÷ 8 = 11.75

Do not accept *squaring evaluated as × 2*
eg
- *$(12^2 – 6^2) \div 8 = (24 – 12) \div 8$*

Find the dimensions of a trapezium and use the formula or component parts
eg
- $\frac{1}{2}(3 + 6) \times 3$
- $4\frac{1}{2} \times 3$
- $3 \times 3 + (3 \times 3) \div 2$

or

The only error is to work with 4 congruent trapezia (not 8), but correctly finds the area of one of them
eg
- $(144 – 36) \div 4 = 27$
-



$3^2 = 9$, $9 \times 3 = 27$

Do not accept *for 2m, 27 seen with no method*

2

or

Shows or implies a correct method to find the total area of the trapezia
eg
- $(12^2 – 6^2)$
- 144 – 36
- 108 seen

or

Show the parallel sides of the trapezium are 3(cm) and 6(cm), and the height is 3(cm)
eg
- Diagram marked correctly

! Brackets omitted
For 1m, condone
eg, accept
- *$12^2 – 6^2 \div 8 = 139.5$*

1
U1

[3]

Q19.

Award **THREE** marks for the correct answer of 14

If the answer is incorrect, award **TWO** marks for:

- sight of 414 as evidence of 23 × 18 completed correctly

OR

- evidence of an appropriate method with no more than one arithmetic error, e.g.

  20 × 20 = 400

$$\begin{array}{r} 23 \\ \times\ 18 \\ \hline 230 \\ 184 \\ \hline 314 \end{array}$$ *(error)*

  400 − 314 = 86

Award **ONE** mark for evidence of an appropriate method.

*Answer need not be obtained for the award of **ONE** mark.*

A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified.

***TWO** marks will be awarded for an appropriate method using the misread number followed through correctly to a final answer.*

***ONE** mark will be awarded for evidence of an appropriate method using the misread number followed through correctly with no more than one arithmetic error.*

Up to 3m

[3]