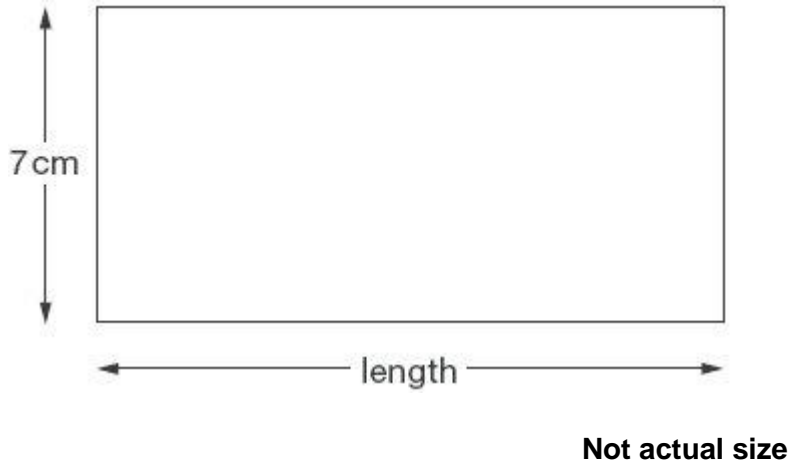


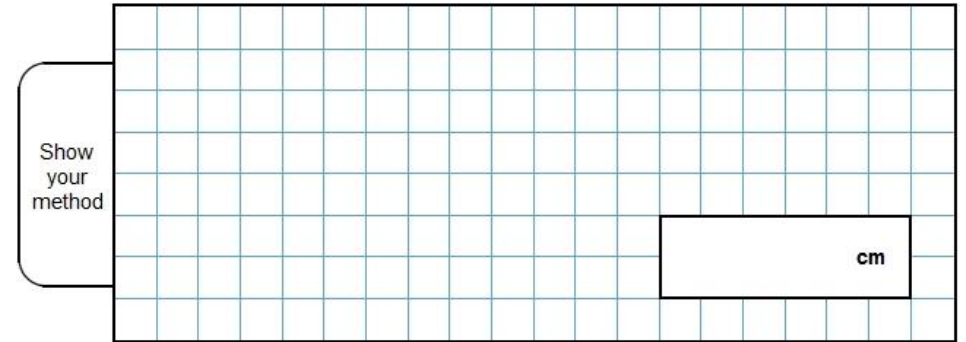
WAL: how to calculate the perimeter and area of compound shapes.

Q1.



The perimeter of this rectangle is 50 centimetres.

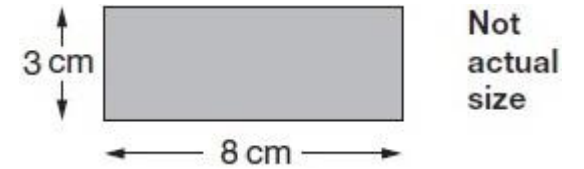
Calculate the length of the rectangle.



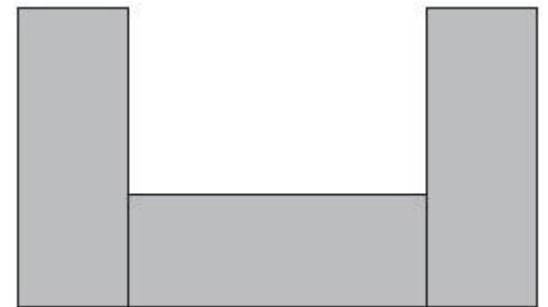
2 marks

Q2.

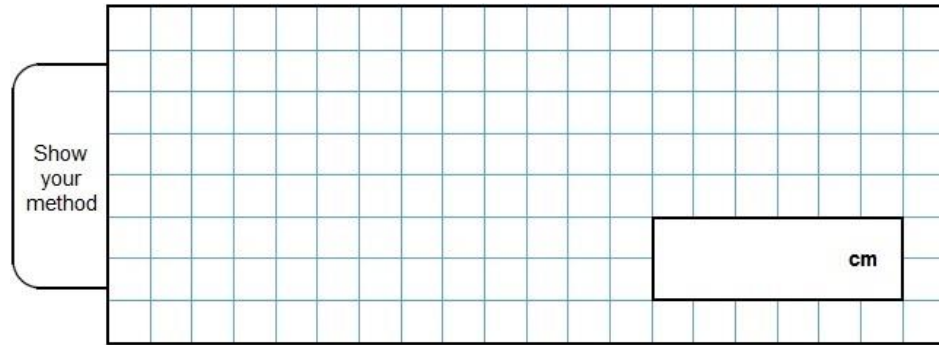
Alfie has some rectangles.



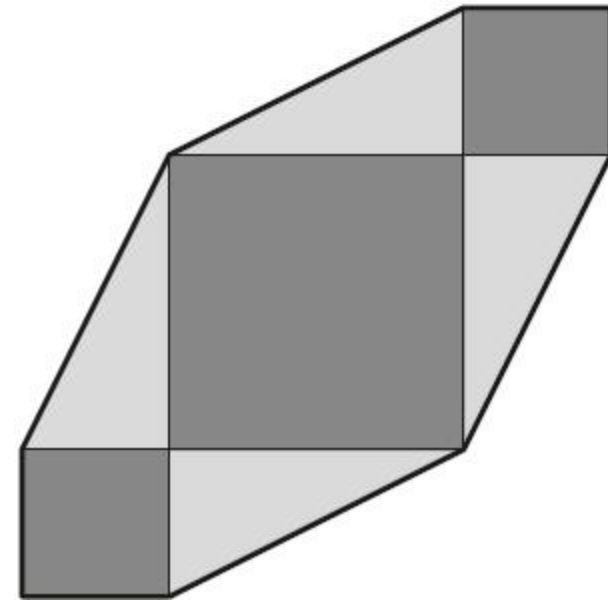
He makes this shape using three of the rectangles.



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



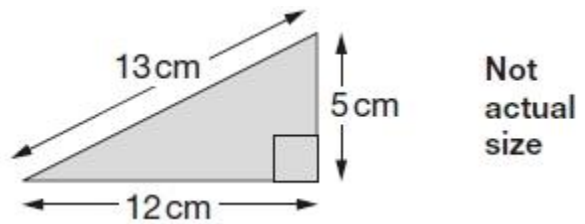
2 marks



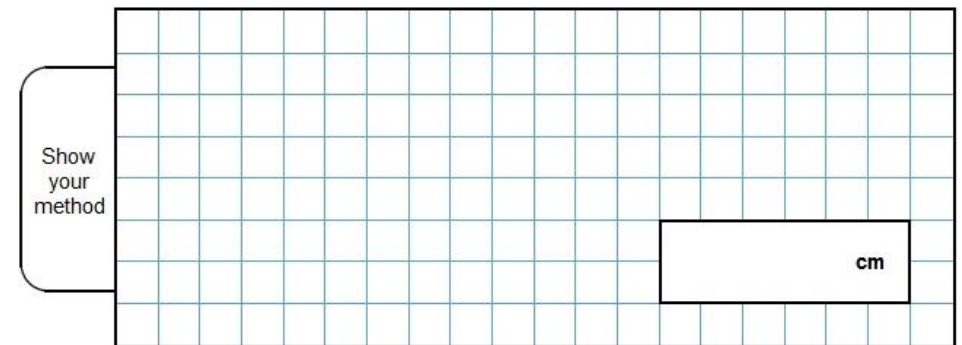
Not
actual
size

Q3.

Chen has some right-angled triangular tiles.



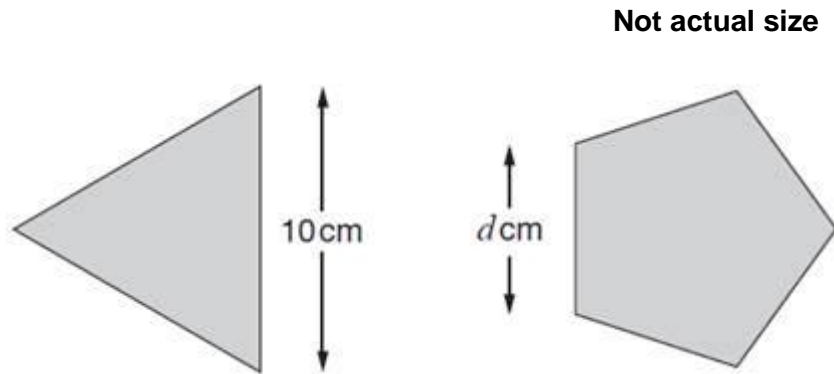
He makes this shape with four of his triangular tiles and three square tiles.



2 marks

Q4.

Here are an equilateral triangle and a regular pentagon.



Each side of the triangle is 10 cm
Each side of the pentagon is d cm

The perimeter of the pentagon is 4 centimetres more than the perimeter of the triangle.

What number does d represent?

Show your method

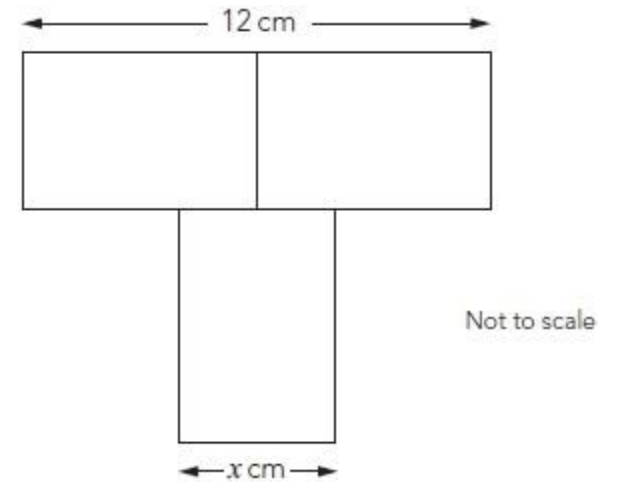
A large grid for showing the method. A small rectangle is drawn in the bottom right corner of the grid.

2 marks

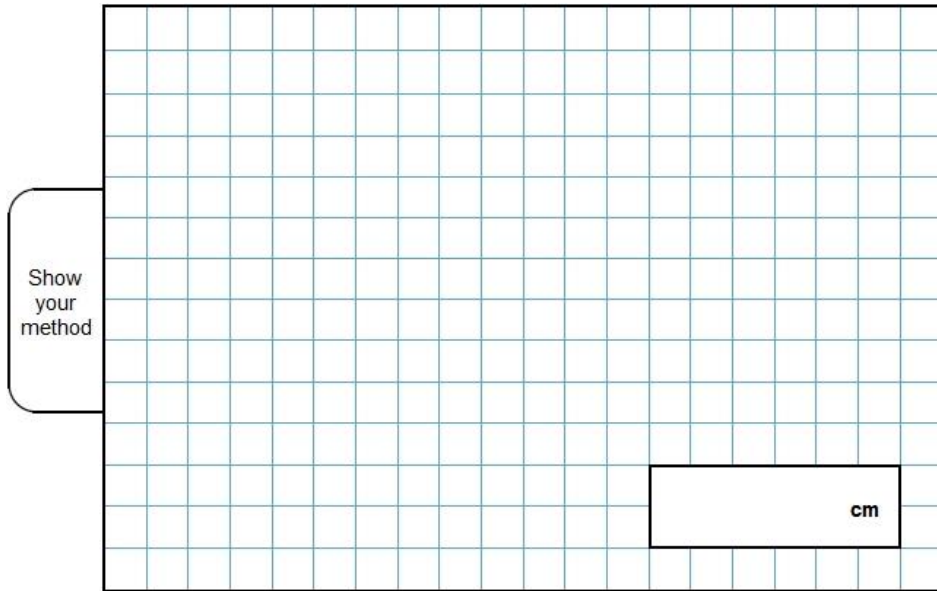
Q5.

Here is a T-shape made from 3 identical rectangles.

The area of the T-shape is **90 cm²**



Work out the value of x

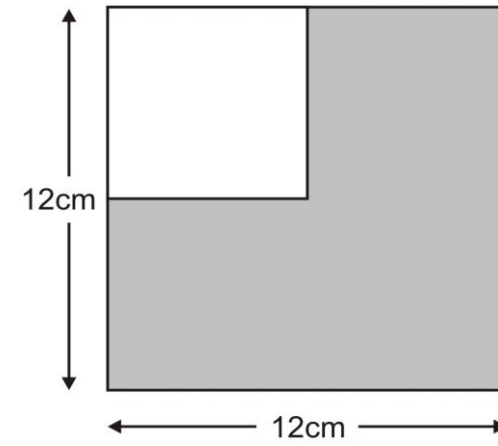


2 marks

Q6.

A white square is painted in one corner of a grey square.

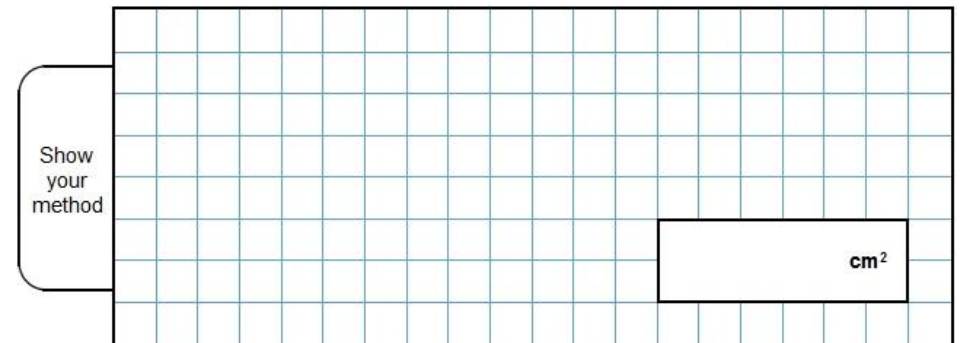
Each side of the white square is **half** the length of a side of the grey square.



actual size

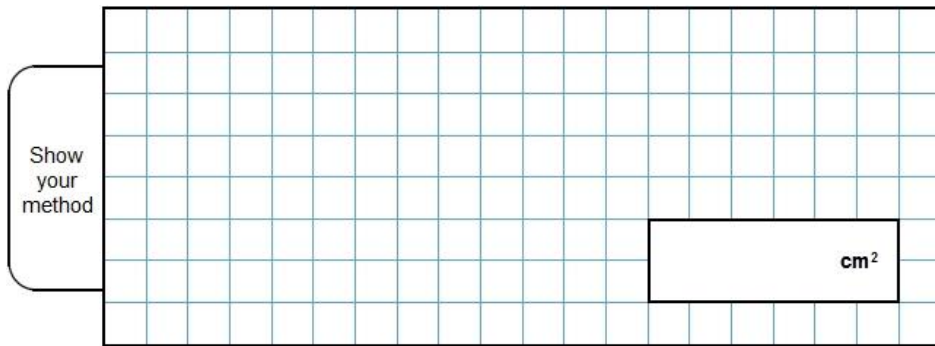
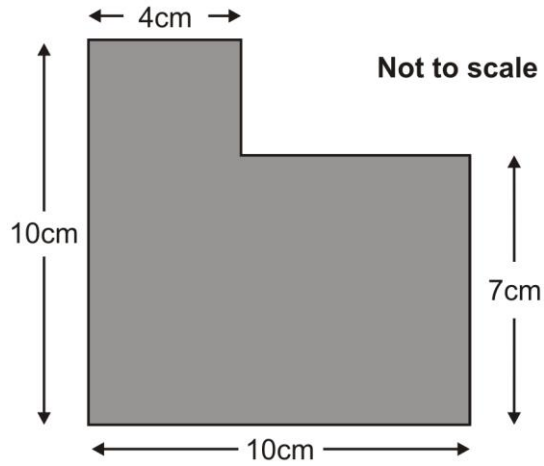
Not

What is the **area** of the grey section?



Q7.

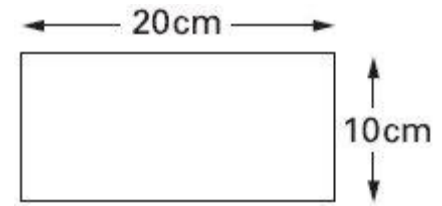
What is the **area** of this shape?



2 marks

Q8.

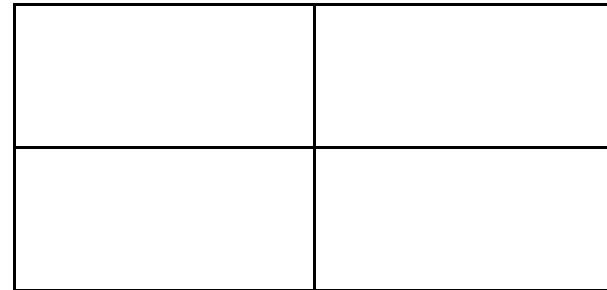
Rebecca has rectangular tiles like this.



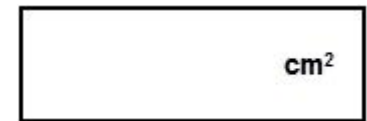
to scale

Not

She makes a larger rectangle using 4 of the tiles.



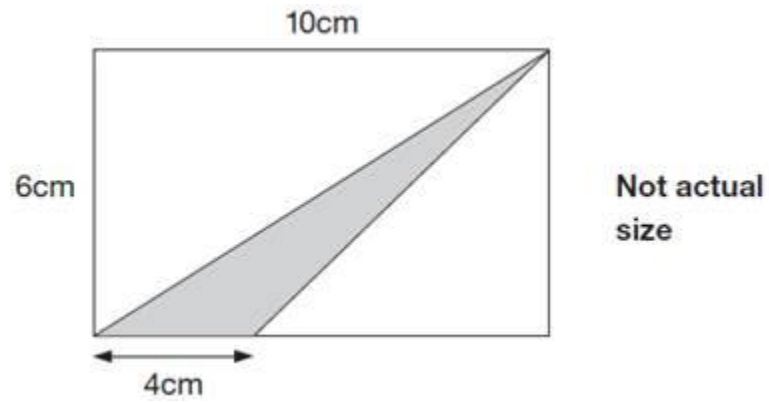
What is the **area** of the larger rectangle?



1 mark

Q9.

The diagram shows a shaded triangle inside a rectangle.



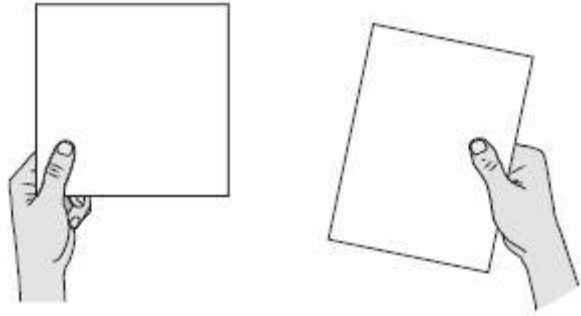
What is the area of the shaded triangle?

Show your method

cm²

2 marks

Q10.



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?

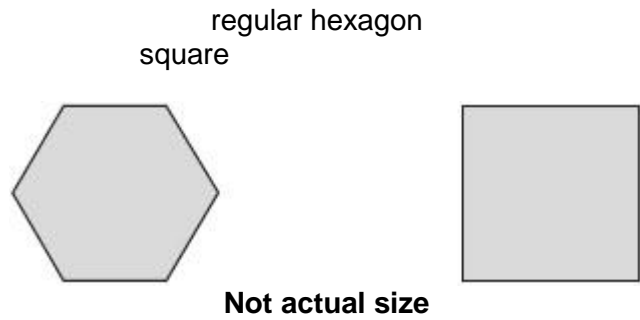
Show your method

A large grid for showing the method. The grid is 20 units wide and 15 units high. A small rectangle is drawn in the bottom right corner of the grid, with the label "cm²" inside it. The rectangle is 3 units wide and 2 units high. A bracket on the left side of the grid indicates the area for showing the method.

3 marks

Q11.

These two shapes have the **same** perimeter.



The length of each side of the **hexagon** is **8** centimetres.

Calculate the **area** of the **square**.

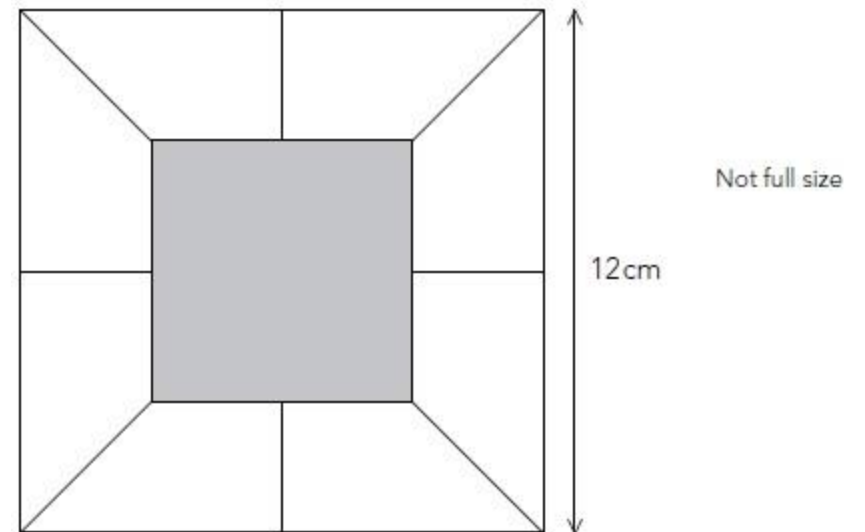
Show your method

2 marks

Q12.

The diagram shows a square of side length 12 cm.

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



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

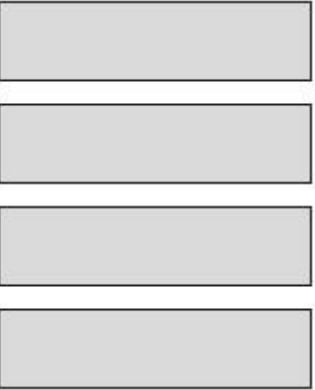
What is the area of one of the trapeziums?

Show your method

cm²

3 marks

The square is cut into quarters to create 4 identical rectangles.



What is the **perimeter** of **one** of the small rectangles?

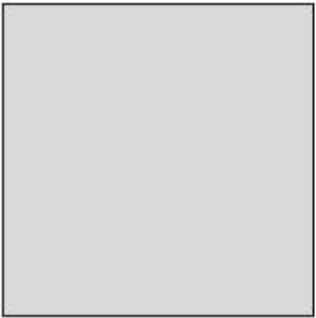
Show your method

cm

2 marks

Q13.

The **area** of this square is 36 cm².



Not actual size

Mark schemes

Q1.

Award **TWO** marks for the correct answer of 18

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

$$50 \div 2 = 25$$

$$25 - 7 = \text{wrong answer}$$

OR

$$7 \times 2 = 14$$

$$50 - 14 = 36$$

$$36 \div 2 = \text{wrong answer}$$

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

Up to 2

[2]

Q2.

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

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

$$8 \times 4 = 32$$

$$3 \times 4 = 12$$

$$5 \times 2 = 10$$

$$32 + 12 + 10 = \text{wrong answer}$$

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

Up to 2

[2]

Q3.

Award **TWO** marks for the correct answer of 72

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

■ $13 \times 4 = 52$

$$5 \times 4 = 20$$

$$52 + 20 = \text{wrong answer}$$

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

Q4.

6.8

Accept equivalent fractions and decimals, eg:

$$\begin{array}{l} \cdot 6\frac{4}{5} \\ \cdot \frac{34}{5} \end{array}$$

2

or

Shows or implies a complete, correct method, eg:

- $5d = 3 \times 10 + 4$
 $5d = 34$
 $d = 34 \div 5$
- $3 \times 10 = 40$ (error)
 $40 + 4 = 44$
 $44 \div 5 = 8.4$ (error)
- $30 + 4 = 34$
 $34 \div 5$

Do not accept incorrect methods, eg:
where the perimeter of the pentagon is treated as being 4cm less than the perimeter of the triangle:

- $30 - 4 = 26$
 $26 \div 5 = 5.2$

1

Q5.

5 cm

2
U1**or**

Answer of 2.5

OR

Shows understanding of a correct method even if there are computational errors, eg

- $90 \div 3 = 36$ (error)
- $12 \div 2 = 6$

$$36 \div 6 = 6$$

1

[2]

Q6.

Award **TWO** marks for the correct answer of 108

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

$$12 \times 12 = 144$$

$$\frac{3}{4} \text{ of } 144$$

OR

$$(12 \times 12) - (6 \times 6)$$

OR

$$(12 \times 12) + (6 \times 6)$$

OR

$$(6 \times 6) \times 3$$

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

Up to 2 (U1)

[2]

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

$$(4 \times 10) + (7 \times 6)$$

OR

$$(10 \times 10) - (3 \times 6)$$

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

Up to 2

[2]

Q8.

800

[1]

Q9.

12

2

or

Shows or implies a complete correct method, eg:

- $4 \times 6 \div 2 = 13$ (*error*)
- $60 - (10 \times 6 \div 2) - (6 \times 6 \div 2)$
- $60 - 48$

1

[2]

Q10.

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.

$$20 \times 20 = 400$$

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

$$400 - 314 = 86$$

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]

Q11.

Award **TWO** marks for the correct answer of 144

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

- $8 \times 6 = 48$
 $48 \div 4 = 13$ (error)
 $13 \times 13 = 169$

OR

Award **ONE** mark for:

- evidence for the side length of the square calculated correctly, i.e.
12

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

Up to 2m

[2]

Q12.

$13\frac{1}{2}$ 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)
 $94 \div 8 = 11.75$

Do not accept *squaring evaluated as $\times 2$*

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

- $\frac{1}{2}(3 + 6) \times 3$

- $4\frac{1}{2} \times 3$

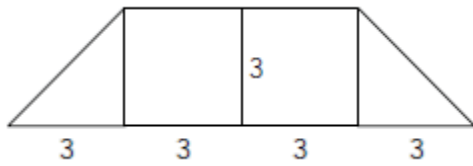
- $3 \times 3 + (3 \times 3) \div 2$

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 trapezium

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]

Q13.

15

2

or

6(cm) and 1.5(cm) seen (*the dimensions of the rectangle*)

OR

Shows or implies a complete correct method, eg:

- $\sqrt{36} = 8$ (*error*)
 $8 \div 4 = 2$
 $2 \times (8 + 2)$
- $6 \times 6 = 36$
 $6 \div 4 = 1.2$ (*error*)
 $6 + 1.2 + 6 + 1.2$

Do not accept confusion between area and perimeter, ie:

- side of square is $36 \div 4 = 9$ (error)
 $2 \times (9 + 2.25)$

1

[2]