

Week 1

Area

Name: _____

Class: _____

Date: _____

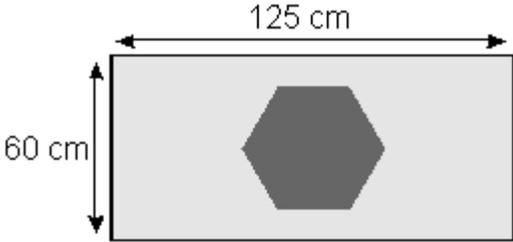
Time: **28 minutes**

Marks: **28 marks**

Comments:

1

Here is a flag.



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

Show your method

cm²

2 marks

20% of the flag is blue.

What **area** of the flag is **blue**?

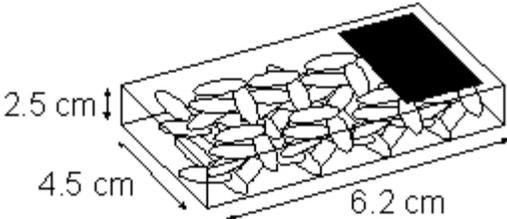
Show your method

cm²

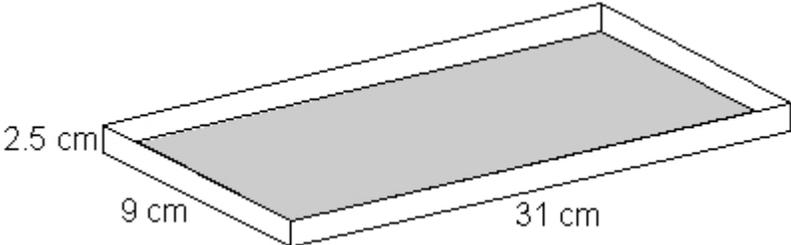
2 marks

2

Boxes measure 2.5 cm by 4.5 cm by 6.2 cm.



The shopkeeper puts them in a tray.



Work out the **largest** number of boxes which can lie flat in the tray.

Show your method

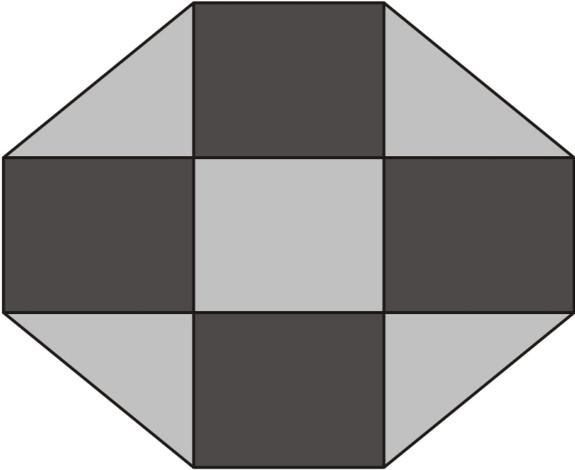
2 marks

3

This plan of a garden is made of rectangles and triangles.

The area of each **rectangle** is **12 square metres**.

What is the **area** of the **whole garden**?

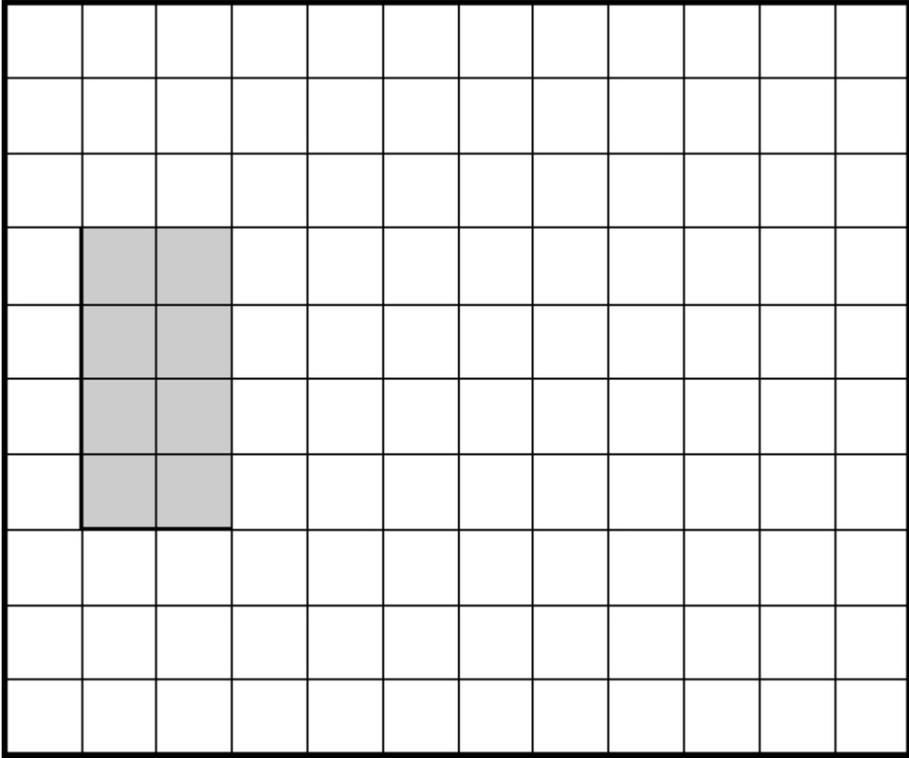


1 mark

4

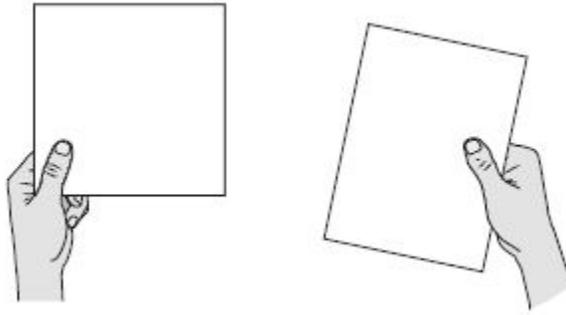
On the grid draw a **triangle** with the **same area** as the shaded rectangle.

Use a ruler.



1 mark

5



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

cm²

A large grid for showing the method to find the difference in area between the two tiles. The grid is 20 units wide and 20 units high. A rounded rectangle on the left side of the grid contains the text "Show your method". A smaller rectangle in the bottom right corner of the grid contains the text "cm²".

3 marks

6

This is a centimetre grid.

Draw 3 more lines to make a **parallelogram** with an **area of 10 cm²**.

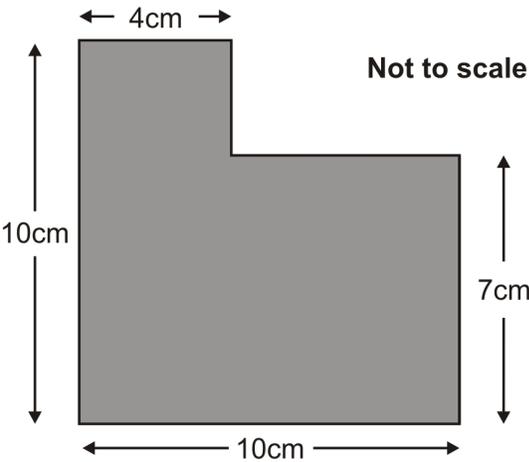
Use a ruler.



1 mark

7

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



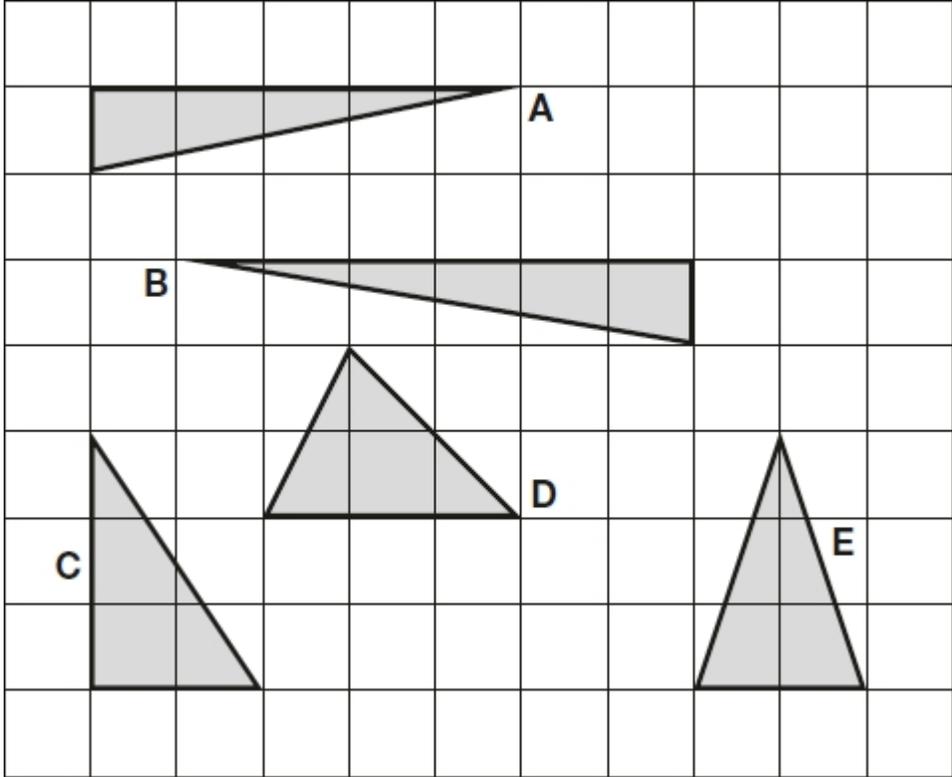
Show your method

cm²

2 marks

8

Here are five triangles on a square grid.



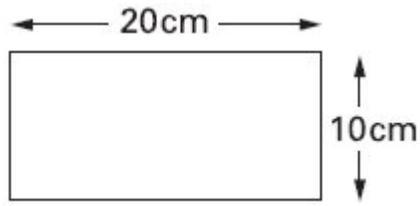
Four of the triangles have the same area.

Which triangle has a **different** area?

1 mark

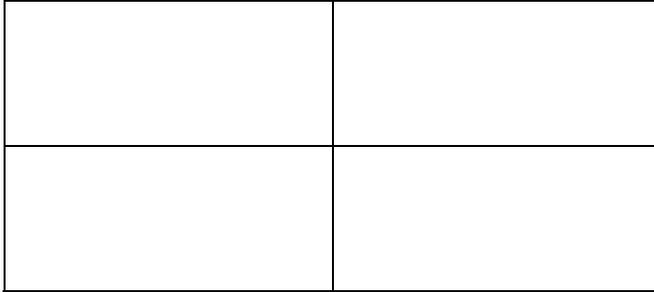
9

Rebecca has rectangular tiles like this.



Not to scale

She makes a larger rectangle using 4 of the tiles.

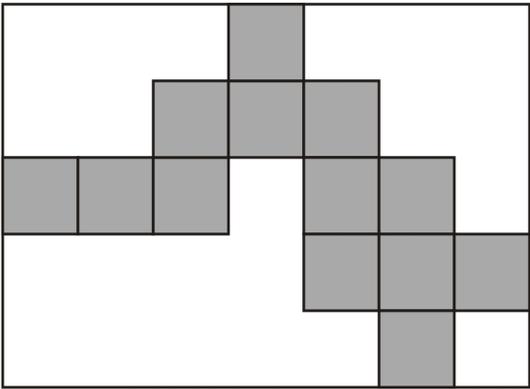


What is the **area** of the larger rectangle?

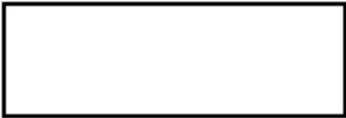
1 mark

10

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



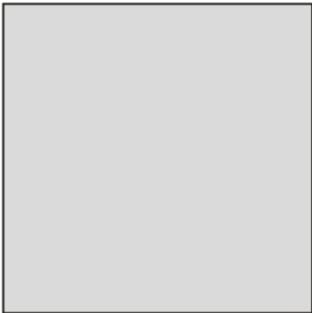
What fraction of the rectangle is shaded?



1 mark

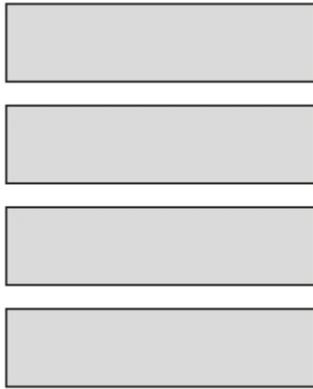
11

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

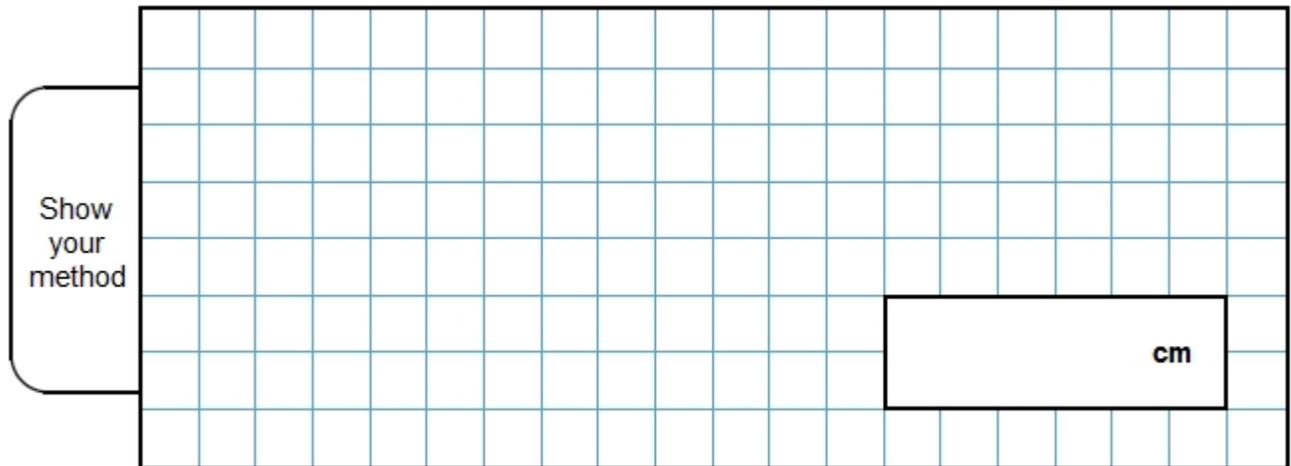


Not actual size

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



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

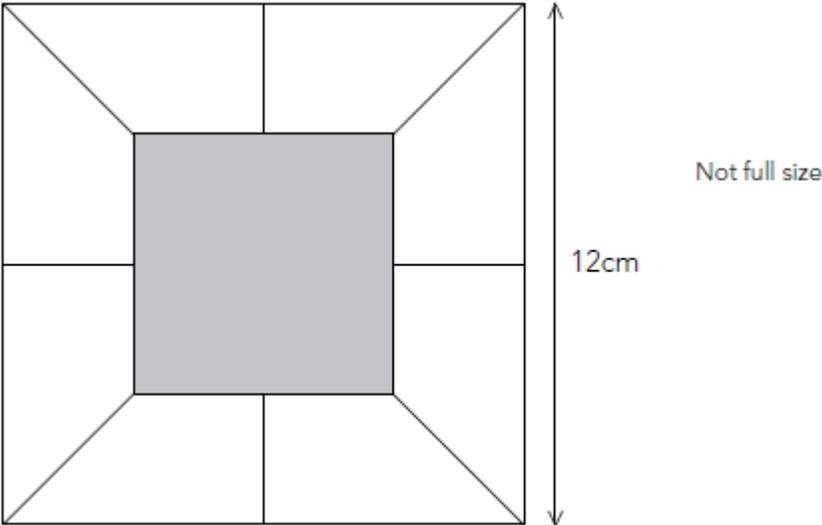


2 marks

12

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?

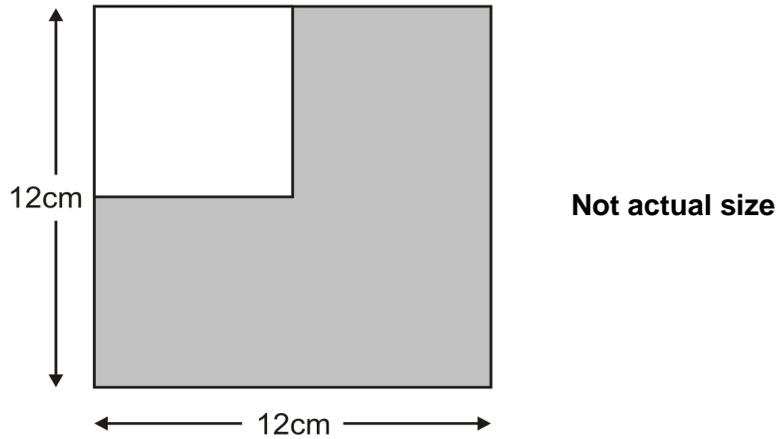
Show your method

The grid is 20 units wide and 20 units high. A small box at the bottom right of the grid contains the text "cm²".

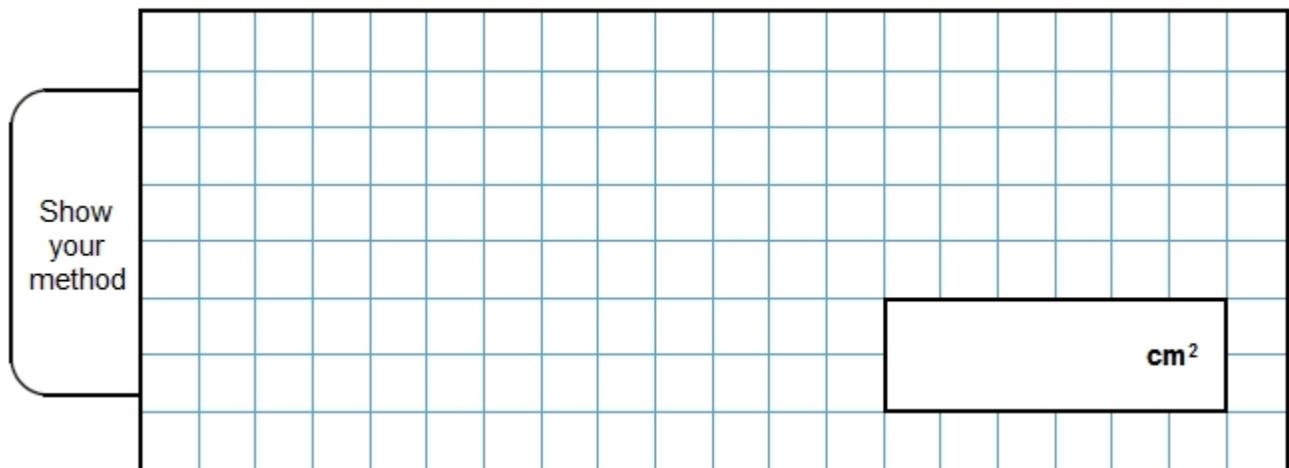
13

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.



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



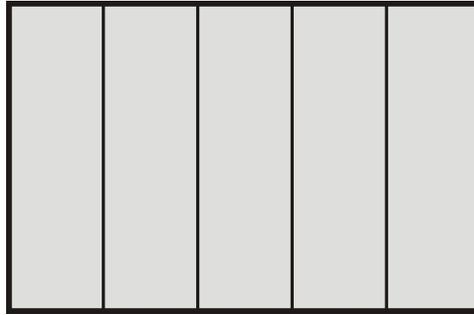
14

Lara has some identical rectangles.

They are 7 centimetres long and 2 centimetres wide.



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



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

1 mark

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

1 mark

Mark schemes

1

- (a) Award **TWO** marks for 7500 cm² even if there are errors in working. If answer is incorrect, award **ONE** mark for evidence of attempt to calculate 60×125 by any appropriate method involving multiplication (not repeated addition only) and some correct partial solution, eg:

- $60 \times 100 + 60 \times 20 + 60 \times 5 = 6000 + 120 + 30$ (partially correct)
- $10 \times 125 \times 6 = 1205 \times 6$ (incorrect answer given)
- $60 \times 125 = 750$ (incorrect answer given)

Up to 2

- (b) Award **TWO** marks for the correct answer of 1500 cm² **OR** **TWO** marks for correct calculation of 20% of answer given to (a)

If the answer is incorrect award **ONE** mark for evidence of an attempt to calculate 20% by an appropriate method, eg:

- 20% is $\frac{1}{5}$, so that's $7500 \div 5 =$ (incorrect answer given)

In marking part (b) give credit to children who correctly calculate 20% of their answer to (a), even if their answer to (a) was incorrect.

The writing of an expression such as:

- $20/100 \times 7500$
- 0.2×7500

alone, without working, is insufficient for the award of the mark.

Up to 2

[4]

2

Award **TWO** marks for the correct answer of 10, even if there are errors in the working.

If the answer is incorrect, award **ONE** mark for evidence of any attempt at solution, by any method, eg:

- $31 \div 6.2$ and $9 \div 4.5$ are attempted calculations;
- $31 \div 6.2$ and $9 \div 4.5$ are estimated;
- "You can get two boxes widthways and 5 lengthways".

Up to 2

[2]

3

(a) 84

1

(b) Award **TWO** marks for the correct answer of 5.

If the answer is incorrect, award **ONE** mark for an appropriate calculation such as:

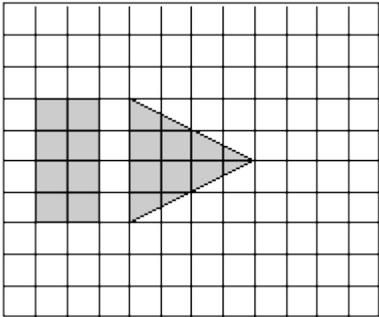
- $(34 - 6 - 8) \div 4 =$ incorrect answer.

up to 2

[3]

4

Any triangle with an area of 8 cm^2 , eg

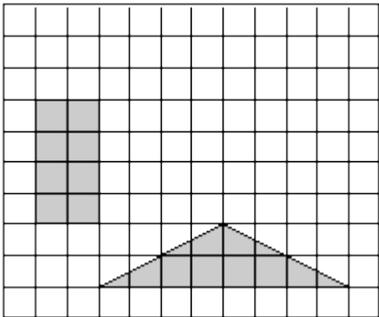


Drawings must be accurate to within 2 mm of appropriate grid intersections.

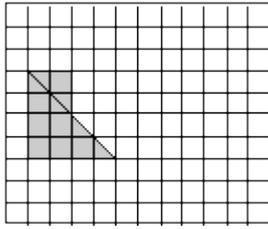
The triangle need not be shaded and need not have vertices at grid junctions.

Do not penalise drawings done without a ruler, provided the intention is clear.

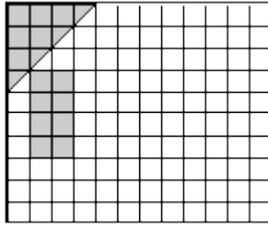
OR



Accept drawings that overlap the given rectangle or use the edge of the grid, eg



OR



[1]

5

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.*

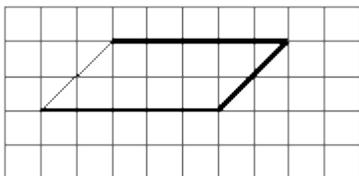
***ONE** mark will be awarded for evidence of an appropriate method using the misread number followed through correctly with no more than one arithmetic error.*

Up to 3m

[3]

6

Diagram completed as shown below:

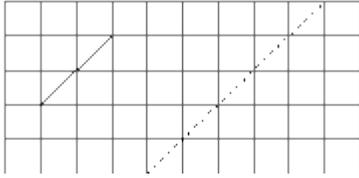


Accept slight inaccuracies in drawing provided the intention is clear.

The shape need not be shaded.

OR

any parallelogram using the given line,
and part of the broken line shown below.



[1]

7

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]

8

A

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

[1]

9

800

[1]

10

$$\frac{13}{35}$$

U1

[1]**11**

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]

12

$13\frac{1}{2}$ 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

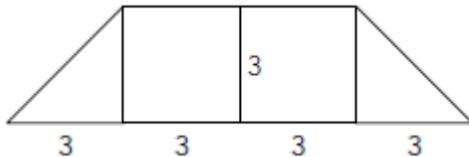
- $\frac{1}{2}(3 + 6) \times 3$
- $4\frac{1}{2} \times 3$
- $3 \times 3 + (3 \times 3) \div 2$

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 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]

13

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]

14

(a) 34

1

(b) 70

1

[2]