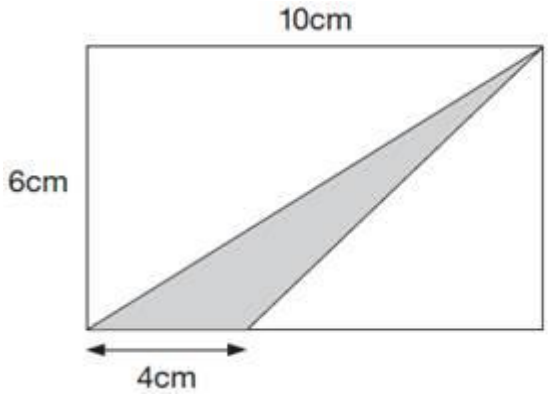
Q1.

The diagram shows a shaded triangle inside a rectangle.



Not actual size

What is the area of the shaded triangle?

Show your method

cm^2

2 marks

Q2.

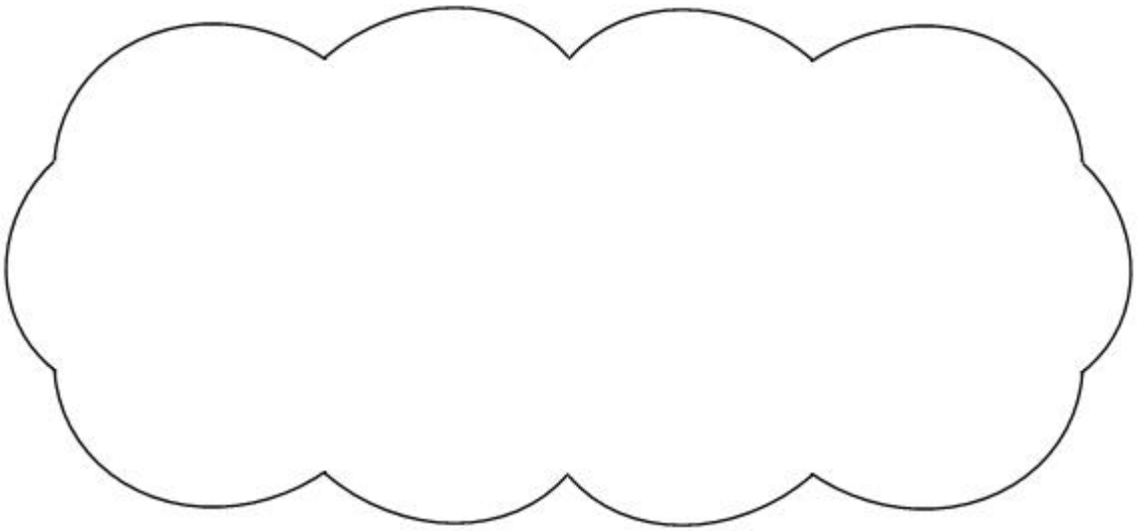
Megan says,

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

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

Yes / No

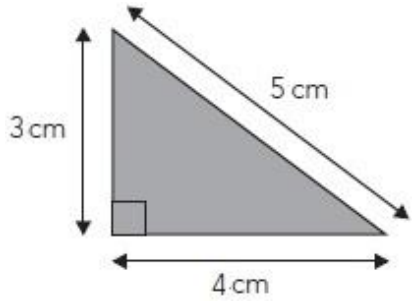
Explain how you know.



1 mark

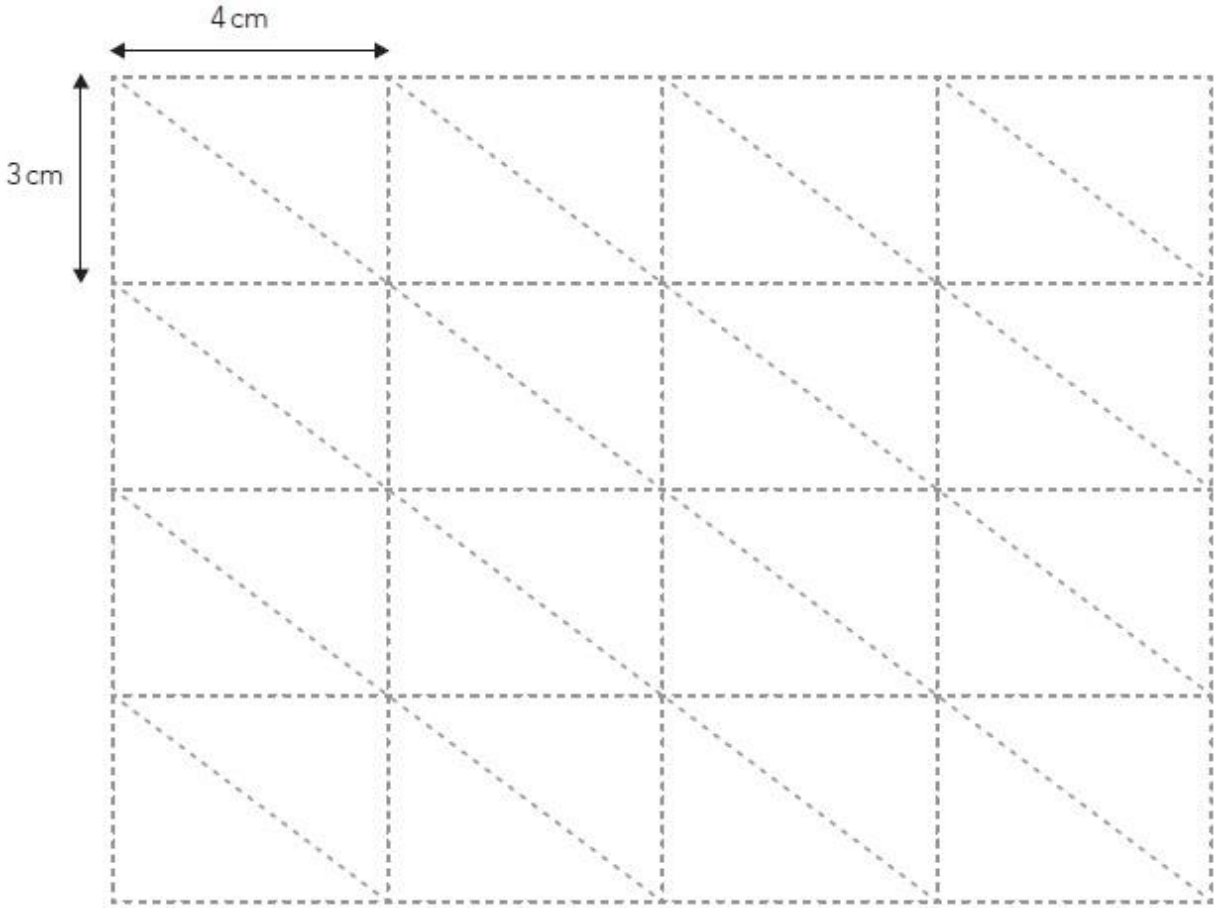
Q3.

The grid below is made of right-angled triangles like this:



Shade triangles on the grid to make a **quadrilateral**.

Your quadrilateral must have an area of **24 cm**^{2} and a perimeter of 26 cm.

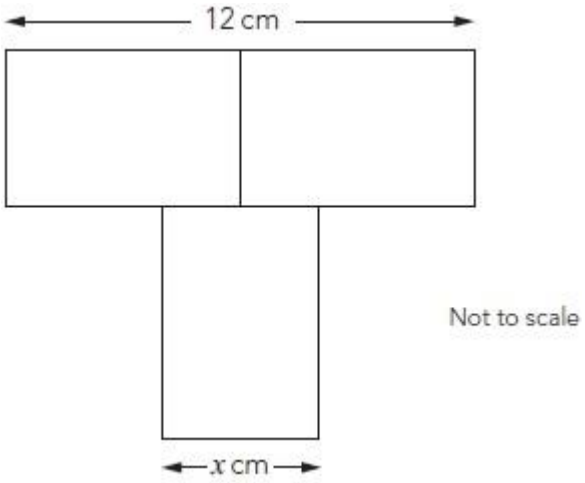


2 marks

Q4.

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

Show your method

cm

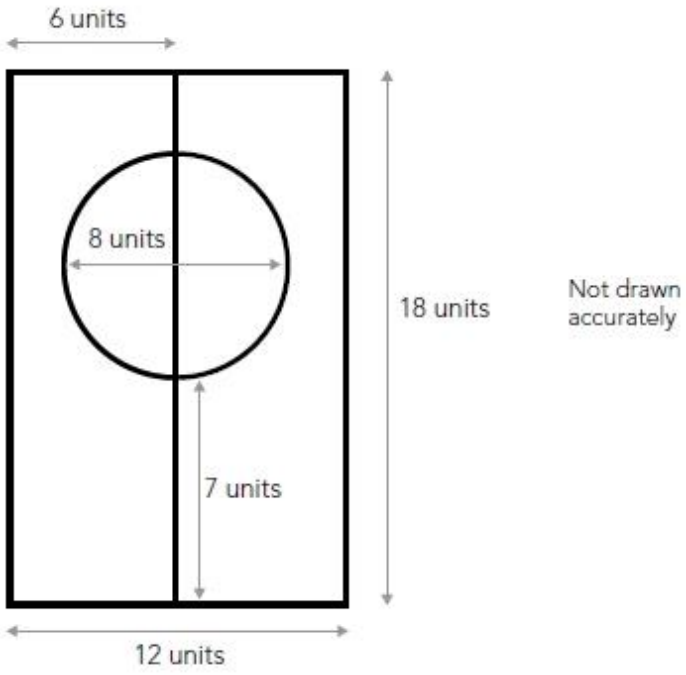
2 marks

Q5.

The flag of Greenland is a rectangle with a circle drawn inside.

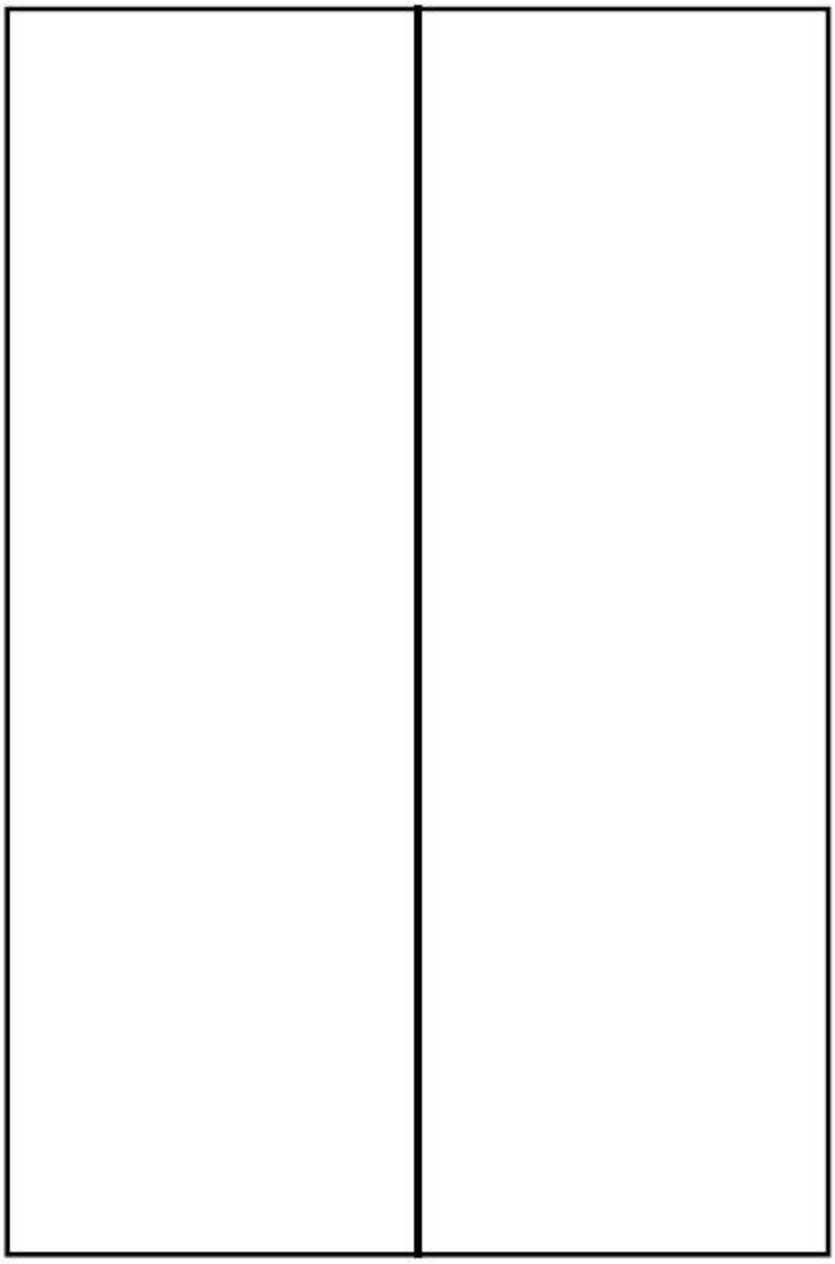
Here is the same flag rotated.

The sketch gives the information you need to draw the flag.



Use the correct mathematical equipment to **draw accurately** the flag of Greenland.

Some of the flag is drawn for you.



3 marks

Q6.

How many **days** old will the baby be when she has lived for **one million seconds**?

Show your method

days

2 marks

Q7.

A machine pours 250 millilitres of juice every 4 seconds.

How many **litres** of juice does the machine pour every **minute**?

Show your method

litres

2 marks

Q8.

The International Space Station orbits the Earth at a height of 250 miles.

What is the height of the International Space Station in **kilometres?**

Use 8 kilometres equals 5 miles.

km

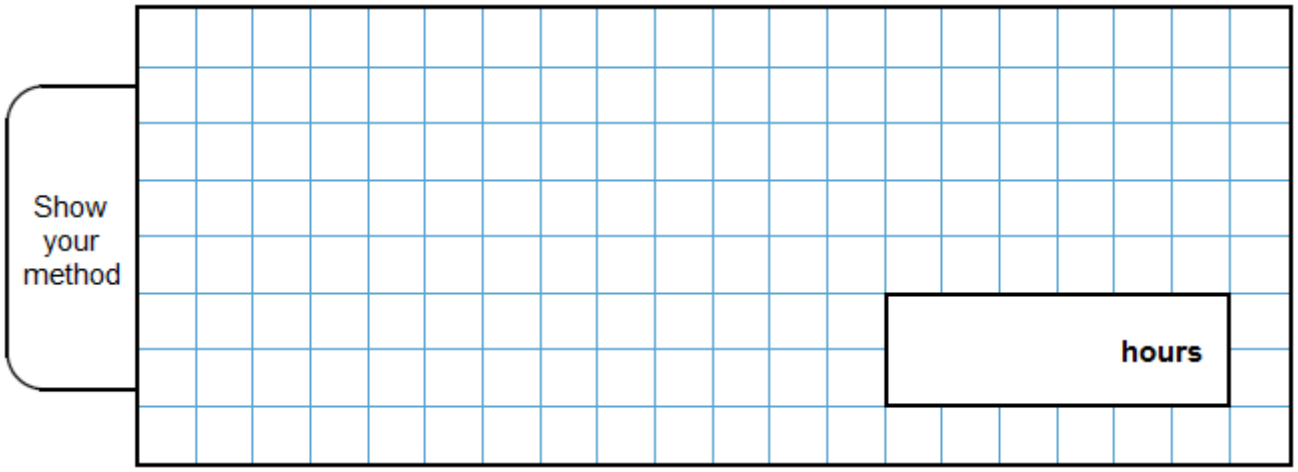
1 mark

Q9.

The length of a day on Earth is 24 hours.

The length of a day on Mercury is $58\frac{2}{3}$ times the length of a day on Earth.

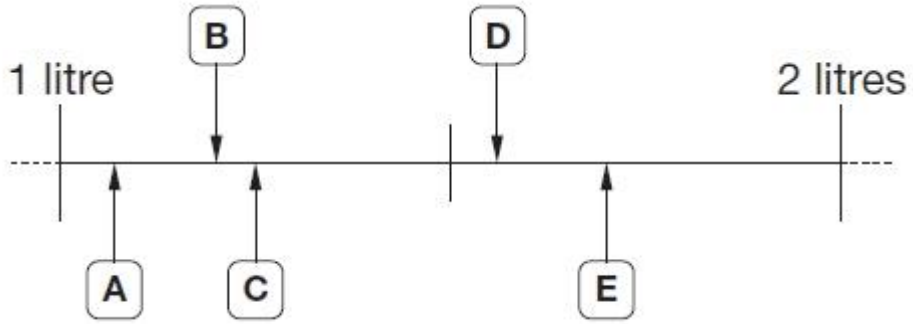
What is the length of a day on Mercury, in **hours**?



2 marks

Q10.

Here are five letters on a scale.



Match each letter to one of the capacities in the list below.

1200 ml	☐
1.7 l	☐
$1\frac{1}{4}$ l	☐
1560 ml	☐
1.07 l	☐

2 marks

Q1.

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

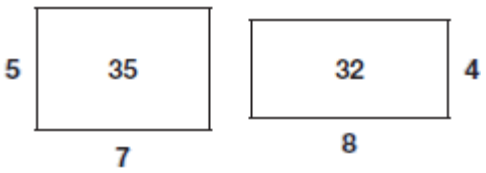
[2]

Q2.

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:

- *$6 \times 2 = 12$, $5 \times 3 = 15$*
- 

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

- *6^2 for 6 cm^2*

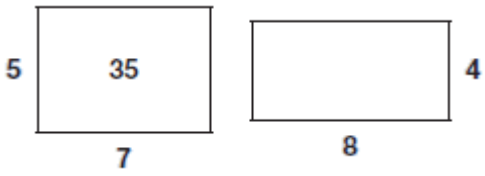
! Indicates Yes, or no decision made, but explanation clearly correct

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*

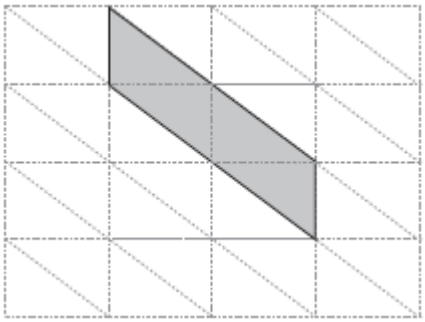
have the same area

- 

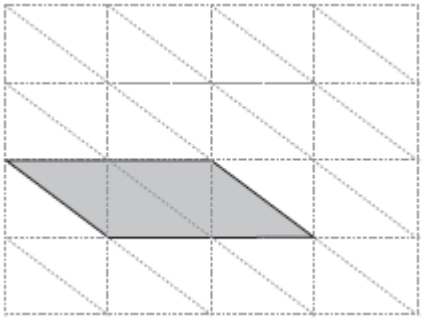
[1]

Q3.

Shows a correct quadrilateral, eg

- 

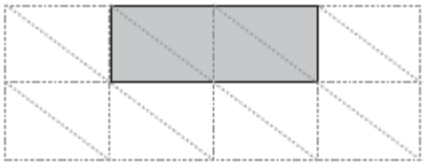
OR

- 

2
U1

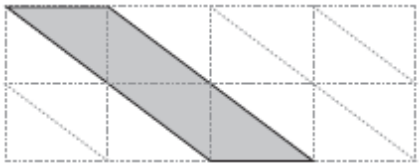
or

Shows a quadrilateral with an area of 24 cm^2 but not a perimeter of 26 cm, eg

- 

OR

-



1

! Shading omitted

Accept provided the quadrilateral drawn is unambiguous

! Lines not ruled or accurate

Accept slight inaccuracies in drawing provided the pupil's intention is clear

[2]

Q4.

5 cm

2
U1

or

Answer of 2.5

OR

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

- 90 ÷ 3 = 36 (error)

  12 ÷ 2 = 6

  36 ÷ 6 = 6

1

[2]

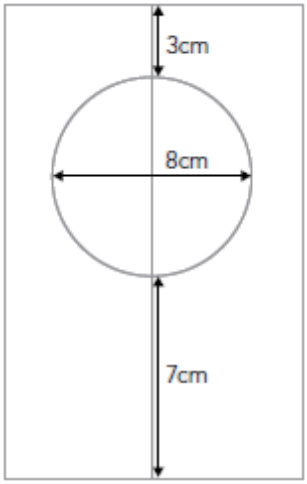
Q5.

Completes the drawing according to the following conditions, with a tolerance of 3 mm in each case

the circle has a diameter of 8 cm

the highest point at which the circle crosses the central vertical line is 3 cm from the top of the answer box

the lowest point at which the circle crosses the central vertical line is 7 cm from the bottom of the answer box



3

or

Any two of the three conditions given above are correct

2

or

Any one of the three conditions given above is correct

1

Accept flag constructed 'upside down'

! Shading incorrect or omitted, or additional lines drawn
Condone, provided the response is unambiguous

! Compasses not used
For pupils who meet one or more of the conditions without using compasses, deduct ONE mark

[3]

Q6.

11 **OR** 12 **OR** any value between 11.5 and 11.6 inclusive

2

or

Any value between 277 and 288 inclusive seen *(value takes account of seconds in a minute and minutes in an hour)*

OR

Any value between 694 and 695 inclusive seen *(value takes account of hours in a day and either seconds in a minute or minutes in an hour)*

OR

Shows or implies a complete, correct method, eg:

- 1 000 000 ÷ 60 ÷ 60 ÷ 24

- 1 000 000 ÷ 86 400
- 16 666 ÷ 60 ÷ 24

Do not accept *place value errors in the value taken for one million in an otherwise correct method, eg:*

100 000 ÷ 60 ÷ 60 ÷ 24

1

[2]

Q7.

Award **TWO** marks for the correct answer of 3.75

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

- 60 ÷ 4 = 15
- 250 × 15 = 3750
- 3750 ml ÷ 1000 =

OR

- 250 ÷ 4 = 62.5 ml per second
- 62.5 × 60 = 3750
- 3750 ml ÷ 1000 =

OR

- 60 ÷ 4 = 15, so there are 15 lots of 4 seconds in 1 minute so there are 15 bottles per minute.
- There are 4 bottles in 1 litre
- 15 ÷ 4 =

*Accept for **TWO** marks, 3,750 ml for final answer in working and the answer box blank **OR** 3,750 in the answer box where the litres has been replaced with millilitres.*

*Accept for **ONE** mark 3,750 litres (l) in the answer box **OR** the final answer in working and answer box blank.*

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

Up to 2m

[2]

Q8.

400

[1]

Q9.

Award **TWO** marks for the correct answer of 1,408

OR

for an answer in the range of 1,406 to 1,409 inclusive.

If the answer is incorrect, award **ONE** mark for:

- sight of 1,392

OR

- evidence of an appropriate method, e.g.
  - $24 \times 58\frac{2}{3}$ = answer

    Within an appropriate method, if a decimal equivalent for $\frac{2}{3}$ is given, it must be rounded or truncated to at least 2 decimal places.

  - 24 × 58 = 1,394 *(error)*
    $\frac{2}{3}$ of 24 = 16
    1,394 + 16 = answer
  - $24 \times \frac{176}{3}$ = answer
  - 24 × 58.67 = answer.

    *A final answer is required for the award of **ONE** mark.*

Up to 2m

[2]

Q10.

Award **TWO** marks for all five letters in the correct order as shown:

B

E

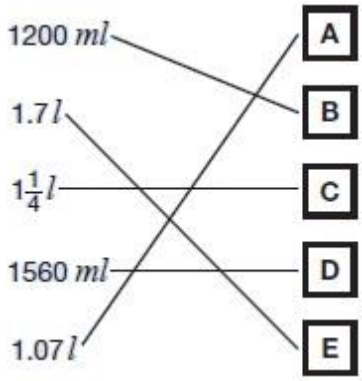
C

D

A

If the answer is incorrect, award **ONE** mark for at least three letters correct.

Accept alternative unambiguous indications, eg



Up to 2

[2]