

**OCR**

Oxford Cambridge and RSA

**F****Friday 6 November 2015 – Morning****GCSE MATHEMATICS A****A503/01** Unit C (Foundation Tier)

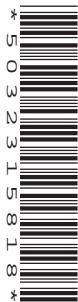
Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

- Scientific or graphical calculator
- Geometrical instruments
- Tracing paper (optional)

**Duration:** 1 hour 30 minutes

Candidate forename		Candidate surname	
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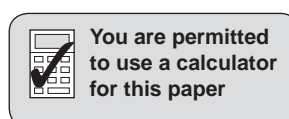
Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

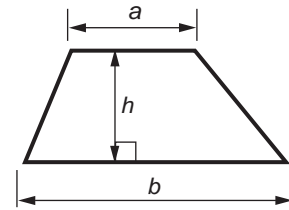
**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- Your quality of written communication is assessed in questions marked with an asterisk (\*).
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are indicated.

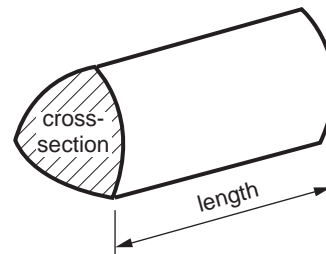


## Formulae Sheet: Foundation Tier

**Area of trapezium** =  $\frac{1}{2} (a + b)h$



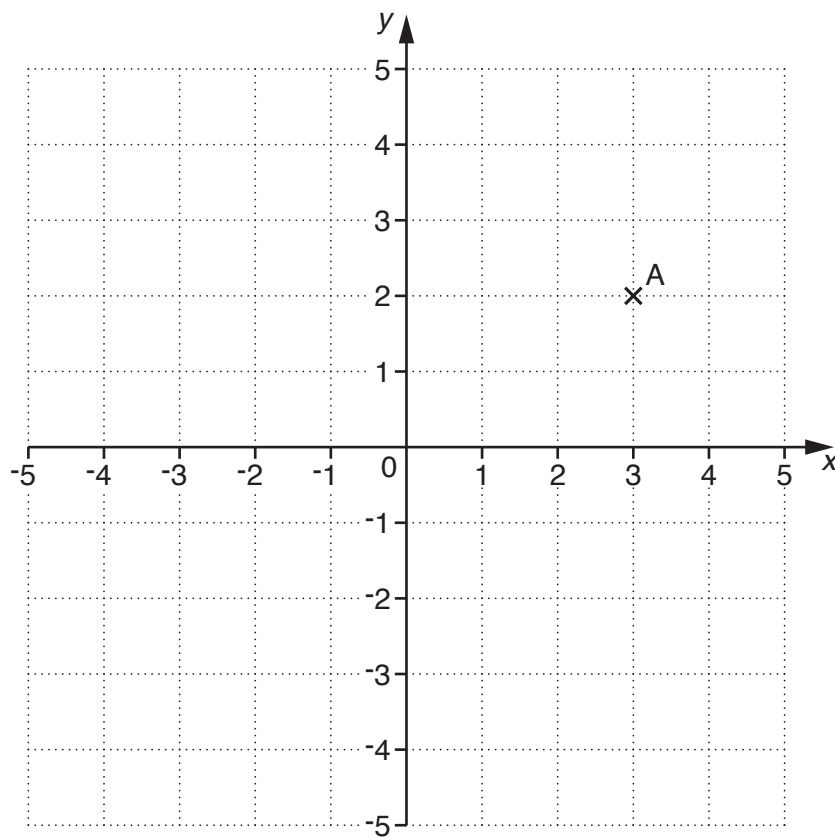
**Volume of prism** = (area of cross-section) × length



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3

1 Here is a coordinate grid.



(a) Write down the coordinates of point A.

(a) ( ..... , ..... ) [1]

(b) Plot the point (0, -1). Label this point C.

[1]

(c) AC is a diagonal of the square ABCD.

Draw the square ABCD.

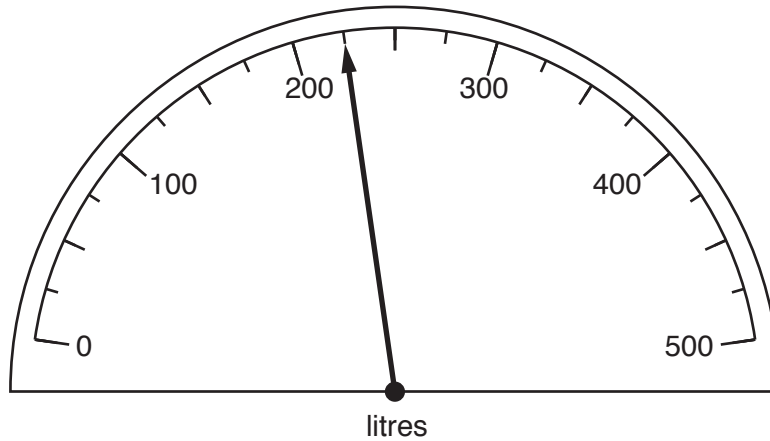
Write down the coordinates of the points B and D.

(c) ( ..... , ..... )

( ..... , ..... ) [3]

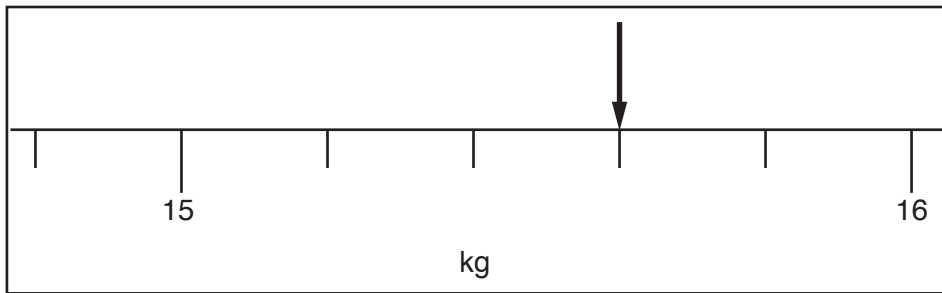
2 (a) Write down the reading shown on each of these scales.

(i)



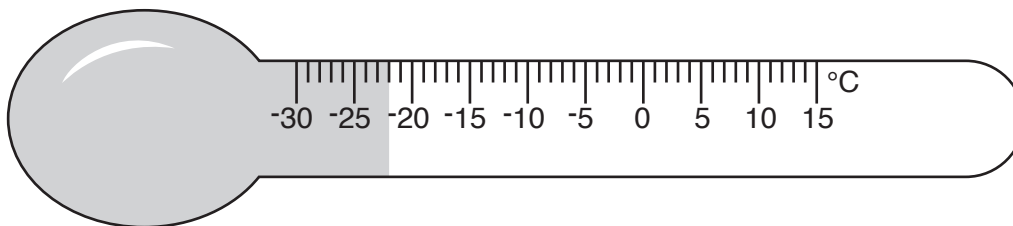
(a)(i) ..... litres [1]

(ii)



(ii) ..... kg [1]

(iii)



(iii) ..... °C [1]

(b) Complete each sentence by writing the most appropriate **metric** unit.

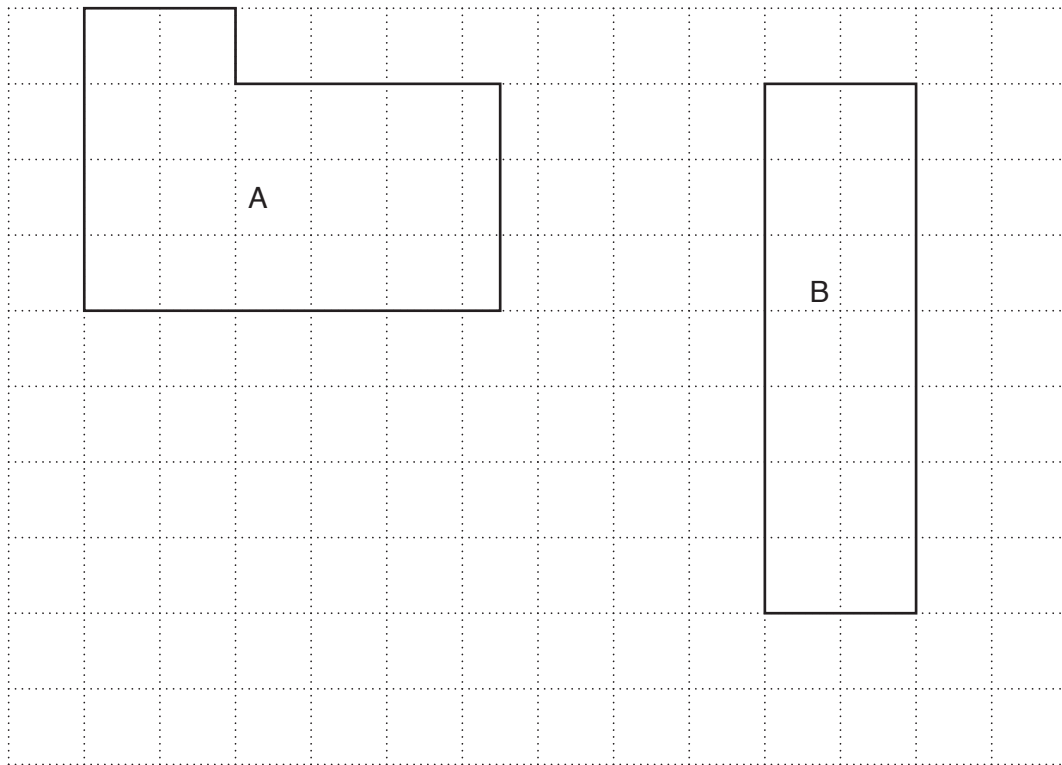
(i) The height of a tree is 12 ..... [1]

(ii) A bucket holds 10 ..... of water. [1]

(iii) The distance between London and Paris is 341 ..... [1]

5

3 These shapes are drawn on a one-centimetre square grid.



(a) Complete the following.

The area of shape A is .....  $\text{cm}^2$  and the area of shape B is .....  $\text{cm}^2$ .

Shape ..... has the bigger area by .....  $\text{cm}^2$ .

[3]

(b) Work out the perimeter of shape B.

(b) ..... cm [1]

## 6

- 4 In golf, a ball is placed on a tee before being hit.  
Jackson is playing golf and has **only** the following tees in his bag.

- 10 orange tees
- 1 red tee
- 5 white tees
- 4 yellow tees

- (a) Jackson chooses a tee at random from his bag.

Choose from the words below to complete each sentence.

certain	likely	impossible	evens	unlikely
---------	--------	------------	-------	----------

It is ..... that he chooses a red tee.

It is ..... that he does **not** choose a white tee.

It is ..... that he chooses a pink tee.

[3]

- (b) April has 10 tees in her bag.  
Her tees are also only orange, red, white or yellow.  
She chooses a tee at random.

- It is evens that she chooses a red tee.
- It is more likely that she chooses a yellow tee than a white tee.
- It is unlikely that she chooses an orange tee.

Write down a possible number of tees of each of the colours that she has in her bag.

(b) orange .....

red .....

white .....

yellow .....

[4]

7

5 The table shows the times that Amanda was at work one week.

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Start time</b>	08 00	08 15	08 00	08 30	07 45
<b>Finish time</b>	16 30	.....	16 30	15 50	.....
<b>Time at work</b>	8 hours 30 minutes	8 hours 10 minutes	8 hours 30 minutes	..... hours ..... minutes	6 hours 50 minutes

(a) Complete the table.

[3]

(b) How long did Amanda spend at work altogether that week?

(b) ..... hours ..... minutes [2]

6 Simplify.

(a)  $9 \times y \times 2$

(a) ..... [1]

(b)  $4x + 8x - x$

(b) ..... [1]

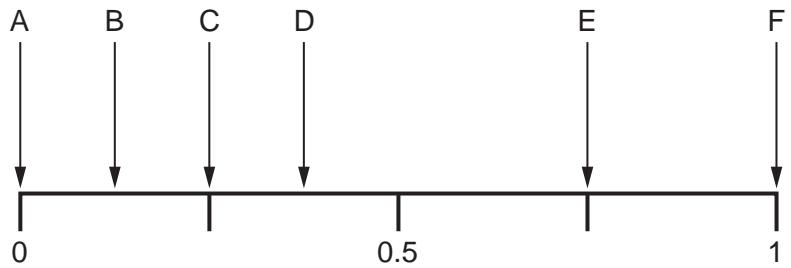
(c)  $\frac{8p}{2}$

(c) ..... [1]

(d)  $3a + 2b - 2a - 5b$

(d) ..... [2]

7 (a) Samantha has only these 8 coins in her purse.



Samantha chooses a coin at random from her purse.

Which arrow shows the probability that she chooses

(i) a 50p coin,

(a)(i) Arrow ..... [1]

(ii) a 20p coin,

(ii) Arrow ..... [1]

(iii) a coin with a value of **less than** £1?

(iii) Arrow ..... [1]

(b) Samantha buys a magazine and pays with a £5 note.

She receives 8 coins in change and puts these in her purse with the other 8 coins.

She still has only 10p, 20p and 50p coins in her purse.

If she now chooses a coin at random from her purse, the probability of choosing a 50p coin is 0.5.

Work out a possible cost for the magazine.

(b) £ ..... [3]



8 (a) Calculate.

(i)  $\frac{5}{6} - \frac{2}{5}$

Give your answer as a fraction.

(a)(i) ..... [1]

(ii)  $1.8^2 + \sqrt{2 \cdot 3}$

Give your answer correct to one decimal place.

(ii) ..... [2]

(iii)  $3.2\text{ km} - 176\text{ m}$

Give the units with your answer.

(iii) ..... [2]

(b) Complete this calculation.

Give the final answer as a fraction in its simplest form.

$$\frac{2}{9} \div \frac{1}{3}$$

$$= \frac{\boxed{\phantom{000}}}{9} \times \frac{\boxed{\phantom{000}}}{\boxed{\phantom{000}}}$$

$$= \frac{\boxed{\phantom{000}}}{\boxed{\phantom{000}}}$$

[3]

10

9 Solve.

(a)  $x + 7 = 3$

(a) ..... [1]

(b)  $7x = 45.5$

(b) ..... [1]

(c)  $\frac{x}{3} = 15$

(c) ..... [1]

(d)  $16 = 4x - 3$

(d) ..... [2]

10 Seven cupcakes cost £8.47.

Calculate the cost of ten of these cupcakes.

£ ..... [3]

11 A fair **four-sided** dice with faces numbered 1, 2, 3 and 4 is rolled.

(a) What is the probability of it landing on

(i) 3,

(a)(i) ..... [1]

(ii) a square number?

(ii) ..... [1]

(b) The **four-sided** dice is rolled 60 times.  
How many times might you expect it to land on 3?

(b) ..... [2]

12 (a) Ian took part in a charity walk.  
He started at 6 pm and finished at 6 am.  
For every 5 minutes Ian walked, he covered 400 m.  
For 10 minutes in every hour he stopped for a rest.  
  
How many kilometres did Ian walk in the 12 hours?

(a) ..... km [4]

(b) Convert your answer to part (a) to miles.

(b) ..... miles [1]

12

13 The circumference of the circular London Eye is 424 m.

Calculate the diameter of the circle.

Give your answer correct to the nearest metre.

..... m [3]

## 13

14 The costs of **one litre** of each of two types of fuel are shown below.

Diesel	Unleaded petrol
£1.40	£1.32

(a) Alan buys 35 litres of **diesel** every week.

How much does he spend on diesel in one year?

(a) £ ..... [3]

(b)\* Daniel's car uses **diesel**.

The diesel to drive 550 miles costs £68.95.

Maja's car uses unleaded petrol.

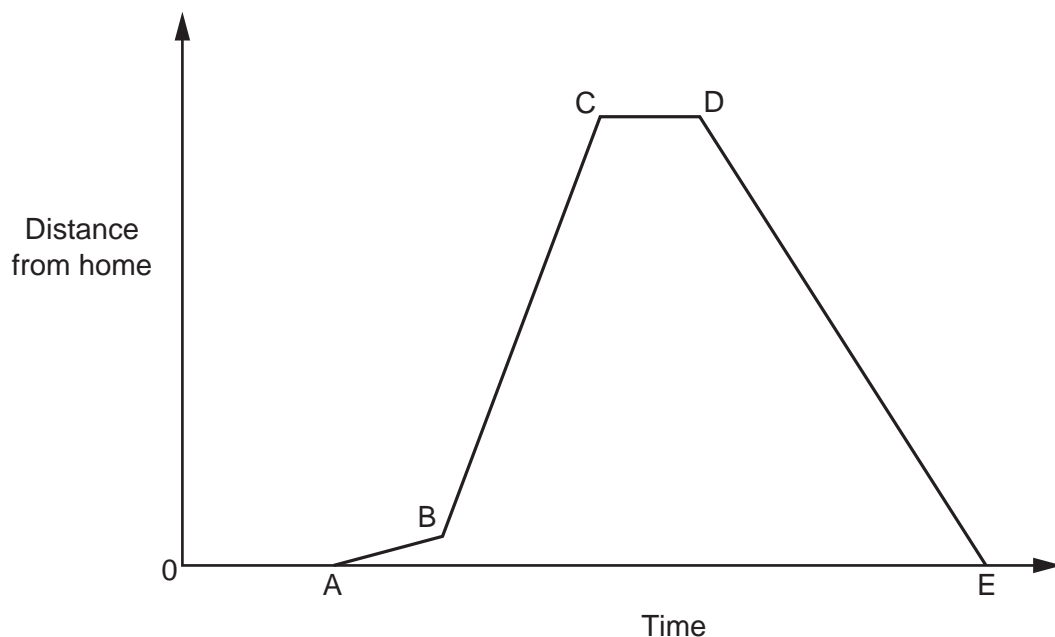
The petrol to drive 460 miles costs £60.06.

Whose car has the greater fuel economy, in miles per litre?

[6]

15 (a) Joe goes for a ride on his motorbike.

The graph below represents his journey.



Write a sentence to describe each part of Joe's journey.

The first has been done for you.

A to B – Joe sets off from home and then travels at a slow speed.

B to C – .....

C to D – .....

D to E – ..... [3]

(b) On one part of his journey Joe travels for  $\frac{3}{4}$  hr at an average speed of 28 km/h.

Calculate how far he travels in this part of his journey.

(b) ..... km [2]

15

- 16** Four friends go tenpin bowling.  
They each pay for 3 games.  
Each person pays £1.99 for the hire of shoes.  
The total cost is £60.76.

Work out the cost each person pays for one game.

£ ..... [3]

- 17** A dice is biased.  
The table shows the probability of obtaining each of the scores on the dice.

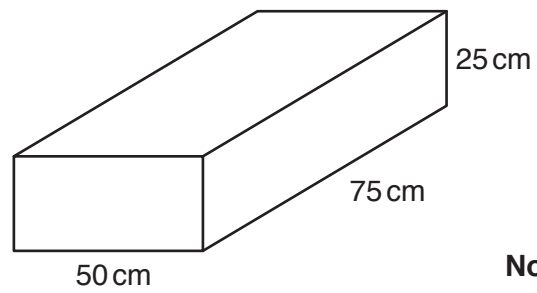
<b>Score</b>	1	2	3	4	5	6
<b>Probability</b>	$x$	$2x$	$3x$	$4x$	$5x$	$6x$

Work out the probability of throwing the dice and scoring 3.  
Give your answer as a fraction in its simplest form.

..... [3]

16

18 A closed, empty box is a cuboid.

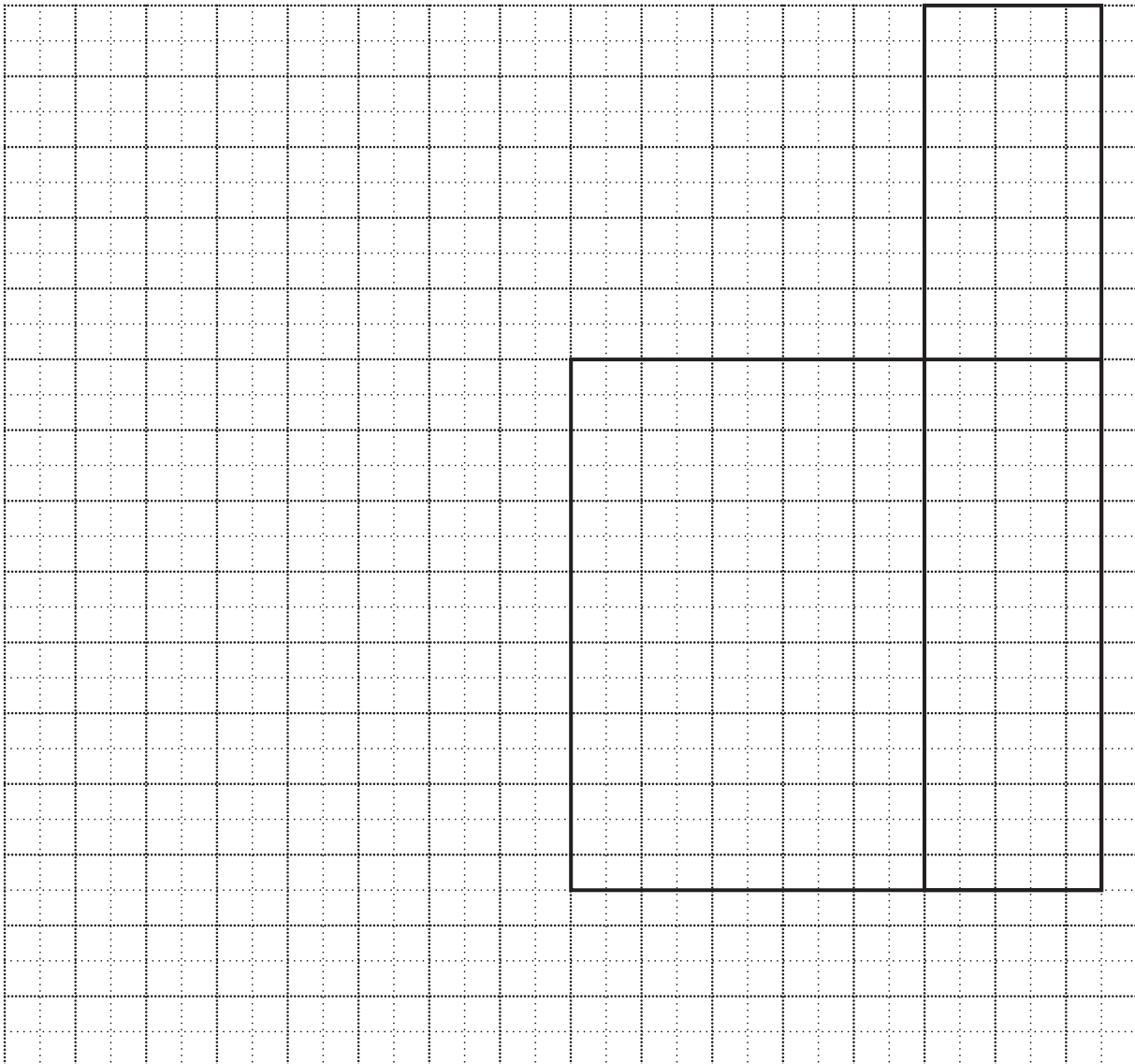


Not to scale

(a) On the grid below, complete the net of the box.

The base and two of the sides have been drawn.

Use a scale of 1 cm to represent 10 cm.



[3]

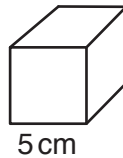


17

(b) Work out the total area of the card used to make the **full size** box.

(b) .....  $\text{cm}^2$  [3]

(c) The empty box is filled with small boxes which are all cubes of edge 5 cm.



(i) Calculate the volume of one of these small boxes.

(c)(i) .....  $\text{cm}^3$  [2]

(ii) How many of these small boxes are needed to fill the large box?

(ii) ..... [3]

18

19 Georgina stops at a petrol station to put petrol in her car.

The gauge on the car shows that the petrol tank is  $\frac{1}{4}$  full.  
Georgina puts 42 litres of petrol into the tank.

The gauge now shows the petrol tank is  $\frac{5}{6}$  full.

How many litres of petrol would be in the tank when it is full?

..... litres **[3]**

**END OF QUESTION PAPER**

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