

**Wednesday 13 June 2012 – Morning**

**GCSE MATHEMATICS B**

**J567/02** Paper 2 (Foundation Tier)

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

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

**Duration:** 1 hour 30 minutes



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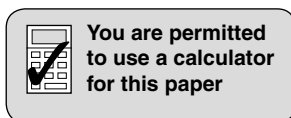
Centre number							Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- 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**

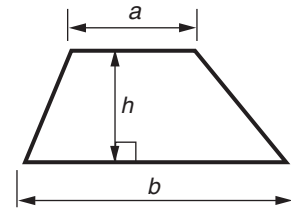
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (\*).
- The total number of marks for this paper is **100**.
- This document consists of **24** pages. Any blank pages are indicated.



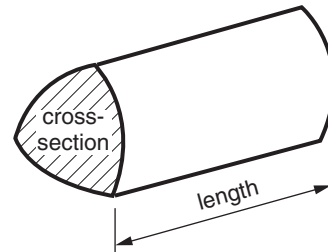
This paper has been pre modified for carrier language

## Formulae Sheet: Foundation Tier

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

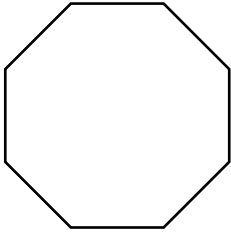


**Volume of prism** = (area of cross-section)  $\times$  length



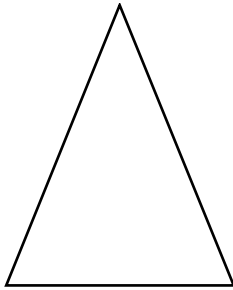
**PLEASE DO NOT WRITE ON THIS PAGE**

- 1 (a) What is the mathematical name of this shape?



(a) \_\_\_\_\_ [1]

- (b) What type of triangle is this?  
Put a ring around the correct answer.



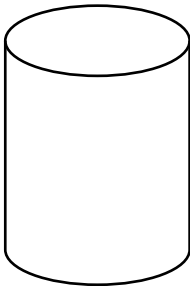
Equilateral

Isosceles

Scalene

[1]

- (c) What is the mathematical name of this solid?



(c) \_\_\_\_\_ [1]

2 Find the missing numbers.

(a)  $7 \times \spadesuit = 21$

(a)  $\spadesuit = \underline{\hspace{2cm}}$  [1]

(b)  $6 + \heartsuit = 12$

(b)  $\heartsuit = \underline{\hspace{2cm}}$  [1]

(c)  $29 - \clubsuit = 11$

(c)  $\clubsuit = \underline{\hspace{2cm}}$  [1]

(d)  $42 \div \diamondsuit = 6$

(d)  $\diamondsuit = \underline{\hspace{2cm}}$  [1]

3 (a) Write down a factor of 6.

(a) \_\_\_\_\_ [1]

(b) Write down **two** multiples of 50.

(b) \_\_\_\_\_ and \_\_\_\_\_ [1]

(c) Write down a prime number between 20 and 30.

(c) \_\_\_\_\_ [1]

4 Choose a word from this list to complete each of the sentences below.

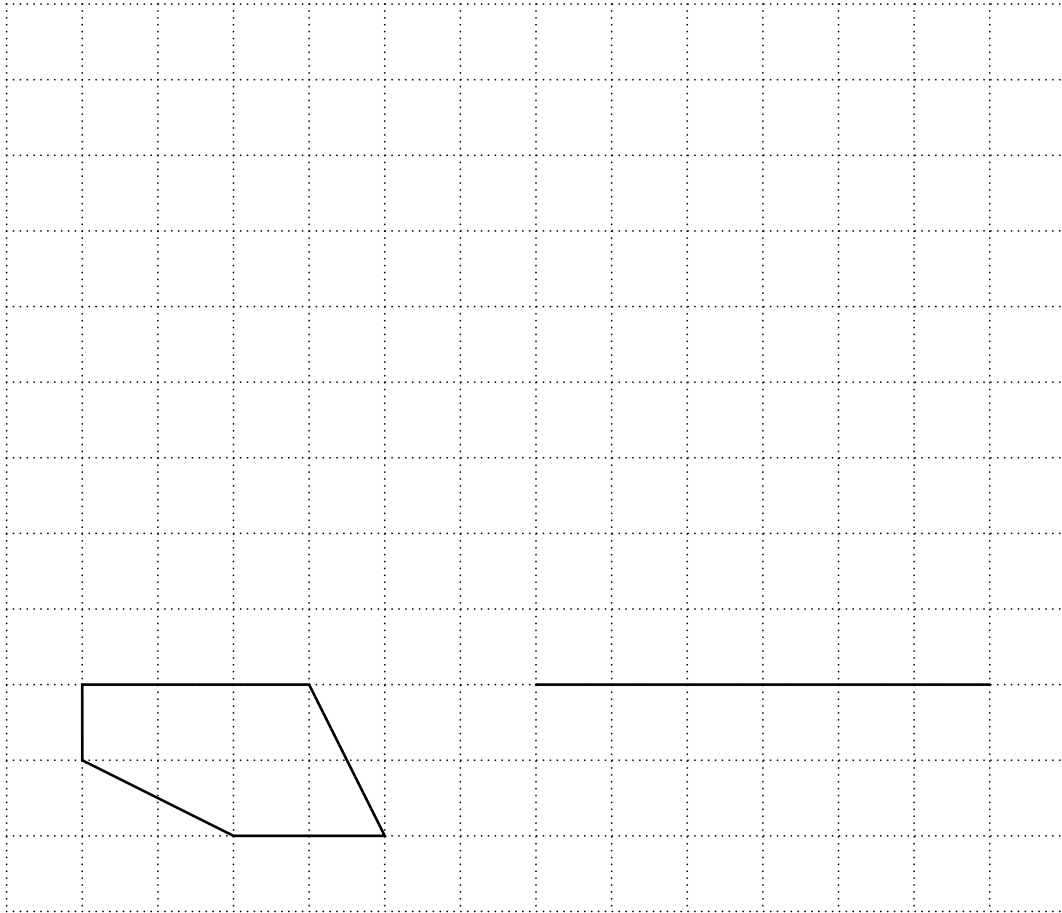
likely      impossible      unlikely      certain      evens

(a) It is \_\_\_\_\_ to snow somewhere in Britain in January. [1]

(b) It is \_\_\_\_\_ for you to walk to the Moon. [1]

(c) It is \_\_\_\_\_ that you will roll a number less than four on an ordinary dice. [1]

- 5 Enlarge the shape below with a scale factor of 3.  
The bottom line has been drawn for you.



[3]

6 (a) Round 27 to the nearest ten.

(a) \_\_\_\_\_ [1]

(b) Round 15 729 to 2 significant figures.

(b) \_\_\_\_\_ [1]

(c) Calculate.

$$28.4 \times 1.47$$

Give your answer correct to 2 decimal places.

(c) \_\_\_\_\_ [2]

7 (a) Here are the first four terms of a sequence.

1      8      15      22

(i) What is the next term of the sequence?

(a)(i) \_\_\_\_\_ [1]

(ii) Explain how you worked out your answer.

\_\_\_\_\_  
\_\_\_\_\_ [1]

(b) Here is the rule to find the next term of another sequence.

double the previous term then add four

The first term of the sequence is 6.

Find the next term.

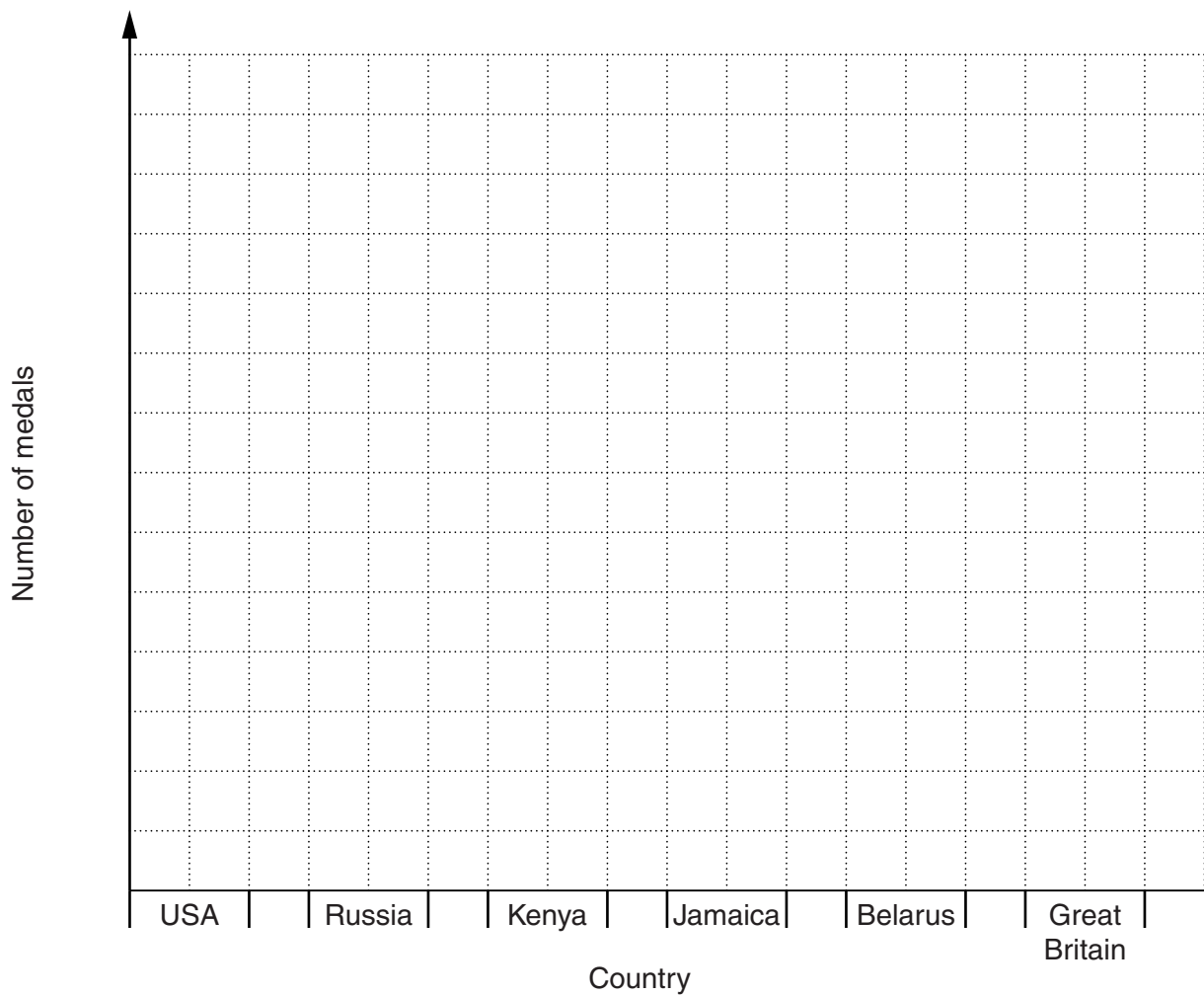
(b) \_\_\_\_\_ [2]



- 8 This table shows the number of medals won by some countries in athletics events in the 2008 Olympic Games.

Country	Medals
USA	23
Russia	18
Kenya	14
Jamaica	11
Belarus	7
Great Britain	4

Draw a bar chart to represent this data.



[3]

9 (a) Write  $\frac{2}{5}$  as a decimal.

(a) \_\_\_\_\_ [1]

(b) Calculate.

(i)  $\frac{3}{8}$  of 48

(b)(i) \_\_\_\_\_ [2]

(ii)  $\sqrt{1225}$

(ii) \_\_\_\_\_ [1]

(iii)  $7^3$

(iii) \_\_\_\_\_ [1]

(iv) 37% of 80 kg

(iv) \_\_\_\_\_ kg [2]

(c) A pair of shoes cost £94.  
In a sale, the price is reduced by 18%.

Calculate the sale price of the shoes.

(c) £ \_\_\_\_\_ [3]

- 10 This word formula can be used to convert kilometres to miles.

$$\text{Distance in miles} = \text{Distance in kilometres} \div 1.6$$

Use the formula to convert

- (a) 120 kilometres to miles,

(a) \_\_\_\_\_ miles [1]

- (b) 37.5 miles to kilometres.

(b) \_\_\_\_\_ km [2]

- 11 (a) One afternoon the temperature was  $2^{\circ}\text{C}$ .  
By evening the temperature had fallen by 5 degrees.

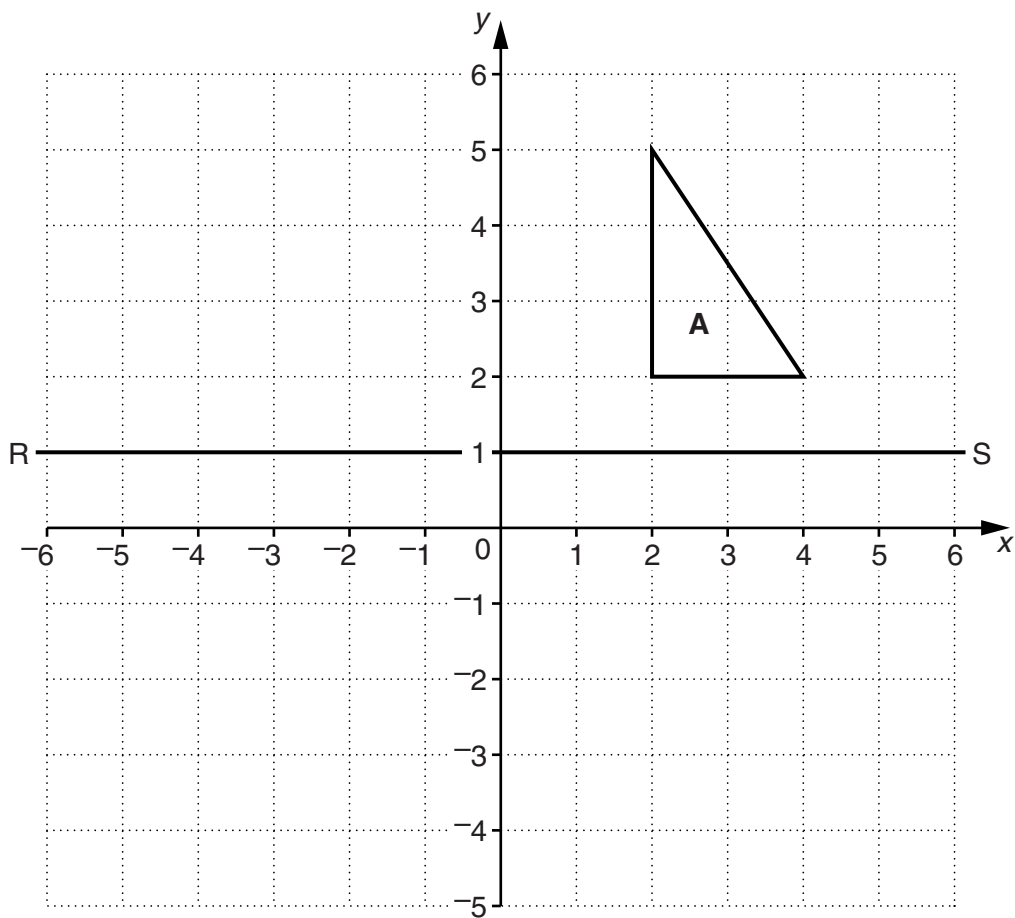
What was the temperature in the evening?

(a) \_\_\_\_\_  $^{\circ}\text{C}$  [1]

- (b) What temperature is 4 degrees warmer than  $-1^{\circ}\text{C}$ ?

(b) \_\_\_\_\_  $^{\circ}\text{C}$  [1]

12 Triangle **A** is drawn on the grid below.



- (a) Reflect triangle **A** in the line RS.  
Label the image **B**.

[1]

- (b) Translate triangle **A** by  $\begin{pmatrix} -5 \\ -2 \end{pmatrix}$   
Label the image **C**.

[2]

13 (a) Work out the value of  $3a - 4b$  when  $a = 5.5$  and  $b = 2$ .

(a) \_\_\_\_\_ [2]

(b) Multiply out.

$$y(2y - 5)$$

(b) \_\_\_\_\_ [1]

(c) Solve.

$$20x - 4 = 100$$

(c)  $x =$  \_\_\_\_\_ [2]

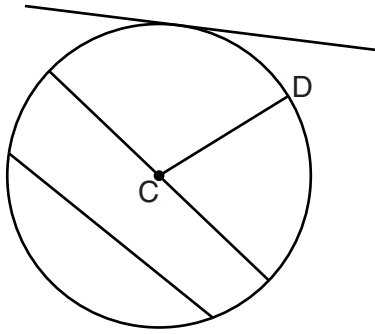
- 14\*** Bill is going on a journey.  
His van goes 15 miles per gallon of petrol.  
Petrol costs £1.37 per litre.

1 gallon is 4.5 litres.

How much will the petrol cost for a journey of 360 miles?

£ \_\_\_\_\_ [5]

15 (a) Here is a circle, centre C.



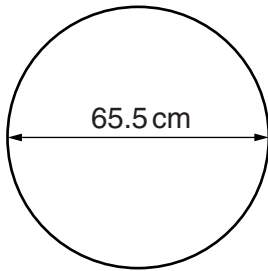
(i) What is the mathematical name for the line CD?

(a)(i) \_\_\_\_\_ [1]

(ii) Write X on the circumference of the circle.

[1]

(b) Parvinder has a bicycle.  
Each wheel has a diameter of 65.5 cm.



On one journey each wheel rotated 3509 times.

Calculate the distance Parvinder cycled.  
Give your answer in kilometres.

(b) \_\_\_\_\_ km [4]

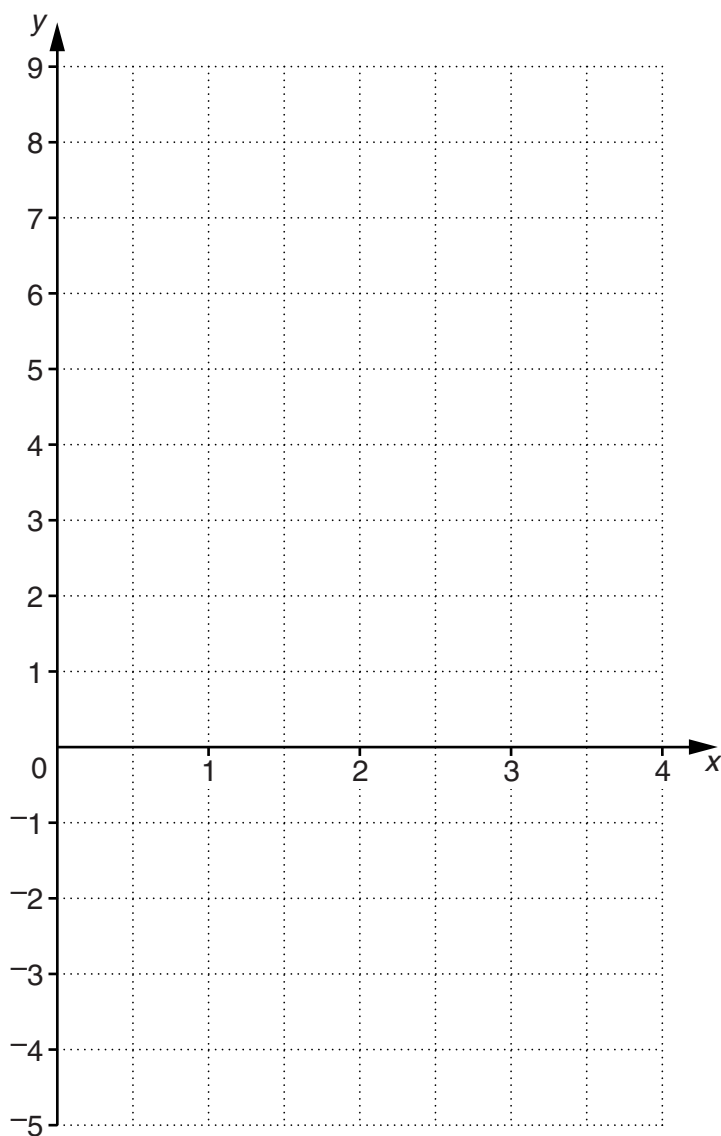


16 (a) Complete this table for  $y = 3x - 4$ .

$x$	0	1	2	3	4
$y$		-1		5	8

[1]

(b) Plot these points on the grid and draw the graph of  $y = 3x - 4$ .



[2]

(c) On your graph put a cross (✕) at the point where  $3x - 4 = 0$ .

[1]

- 17 (a) Mrs Henley is going to the polling station to vote.  
 She can walk (W), go by bus (B) or by taxi (T).  
 There are 9 ways Mrs Henley could travel to and from the polling station.

Complete the list.

To the polling station	From the polling station
B	T

[2]

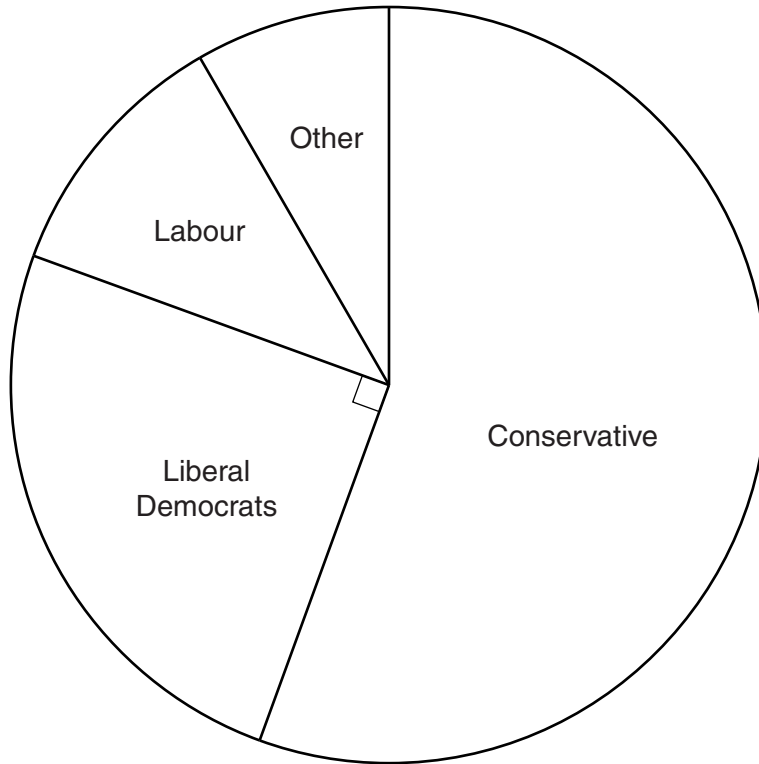
- (b) Rashid carried out a survey outside a polling station.  
 He asked 500 voters how they travelled to the polling station.  
 His results are shown in the table below.

Method of travel	Bus	Walk	Motorbike	Car	Cycle	Taxi
Frequency	116	168	33	156	15	12

Use these results to estimate the probability that the next person asked cycled to the polling station.

(b) \_\_\_\_\_ [2]

(c) In one constituency 53 520 people voted in the 2010 general election. This pie chart summarises the results.



(i) What fraction of the votes were for the Liberal Democrats?

(c)(i) \_\_\_\_\_ [1]

(ii) How many people voted for the Liberal Democrats?

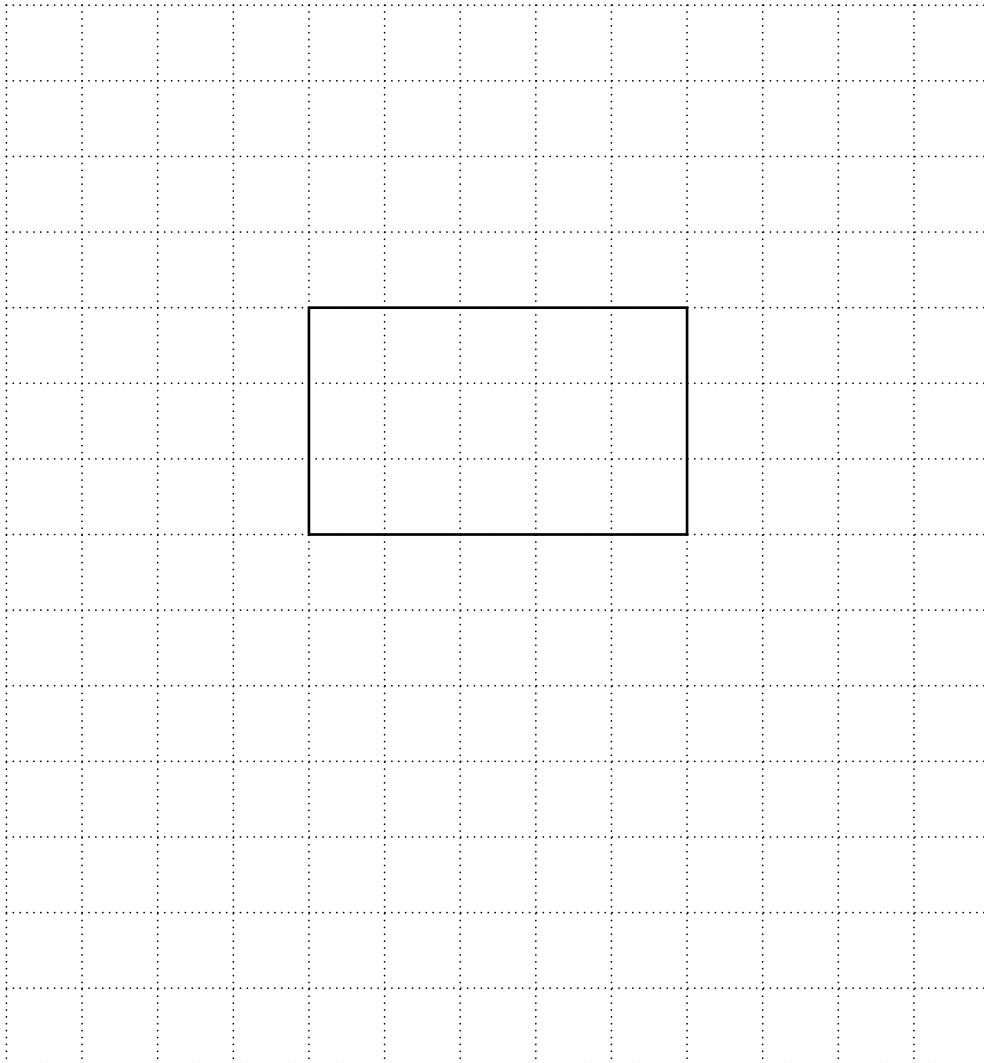
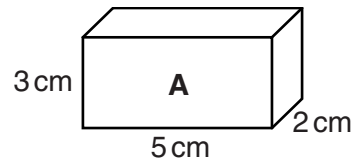
(ii) \_\_\_\_\_ [1]

(iii) How many people voted Conservative?

(iii) \_\_\_\_\_ [3]

Turn over

- 18 (a) Make a full-size drawing of the net of cuboid **A** on the centimetre grid below. One face has been drawn for you.



[3]

- (b) Cuboid **B** has dimensions 12 cm by 5 cm by 3 cm.  
Cuboid **C** has the same volume as cuboid **B** and a rectangular base measuring 4 cm by 5 cm.

What is the height of cuboid **C**?

(b) \_\_\_\_\_ cm [4]

19 (a) Write 600 as a product of its prime factors.

(a) \_\_\_\_\_ [3]

(b) At Rumblestone Station northbound trains stop every 20 minutes and southbound trains stop every 16 minutes. Two trains stopped together at the station at 15 00.

Work out the next time when two trains will stop together at this station.

(b) \_\_\_\_\_ [3]

20 Jenny is doing a survey of the athletes at her club.

(a) Here is one of her questions.

How many competitions have you entered during the past 12 months?  
*(Please tick one of the boxes)*

1 - 4	5 - 8	9 - 12	13 - 16
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Make one criticism of this question.

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[1]

(b) Jenny wants to find out how many hours the athletes train at the weekend.

Write a suitable question for Jenny to use to find this out.  
Remember to include response boxes.

[2]

(c) Jenny is a javelin thrower.

Here is a summary of the lengths of 40 of Jenny's throws this year.

Length of throw ( $s$ metres )	Frequency		
$40 \leq s < 46$	4		
$46 \leq s < 52$	12		
$52 \leq s < 58$	19		
$58 \leq s < 64$	5		

Calculate an estimate of the mean length of her javelin throws.

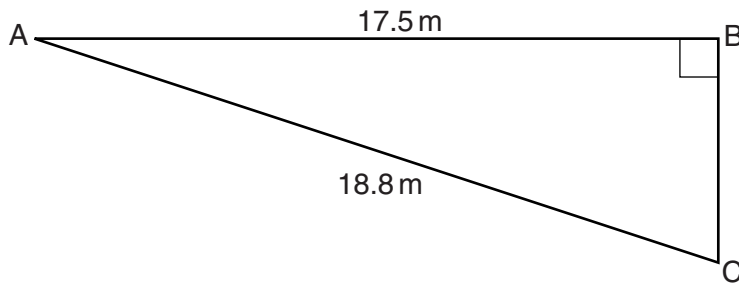
(c) \_\_\_\_\_ m [4]

21 Rearrange  $v = u + 5t$  to make  $t$  the subject.

\_\_\_\_\_ [2]

**TURN OVER FOR QUESTION 22**

22 ABC is a right-angled triangle.



Not to scale

Calculate BC.

Give your answer correct to 2 decimal places.

\_\_\_\_\_ m [4]

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