| Candidate forename | | Candidate surname | |
|---|---|---|---|

| Centre number | | | | | | Candidate number | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

# OXFORD CAMBRIDGE AND RSA EXAMINATIONS

## GCSE

# J567/02

# MATHEMATICS B

## Paper 2 (Foundation Tier)

**WEDNESDAY 13 JUNE 2012: Morning**
**DURATION: 1 hour 30 minutes**
**plus your additional time allowance**

**MODIFIED ENLARGED**

**Candidates answer on the Question Paper.**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**
**Tracing paper (optional)**
**Scientific or graphical calculator**
**A model for question 1**
**A model for question 18**

**READ INSTRUCTIONS OVERLEAF**

DC (SLM/JB) 12MEP06438 65337/1

## INSTRUCTIONS TO CANDIDATES

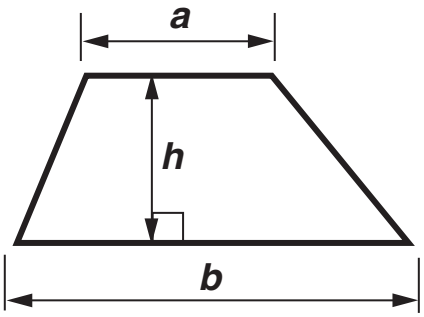
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you 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).**

## INFORMATION FOR CANDIDATES

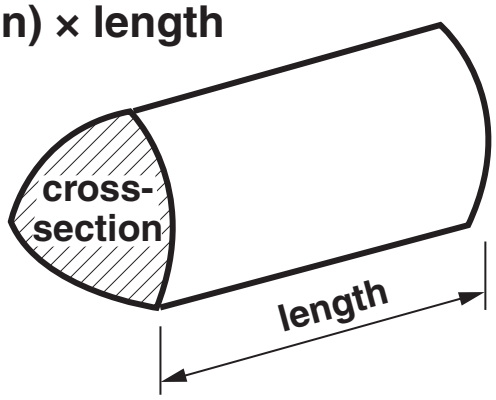
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Use the $\pi$ button on your calculator or take $\pi$ to be 3.142 unless the question says otherwise.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**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

# FORMULAE SHEET: FOUNDATION TIER

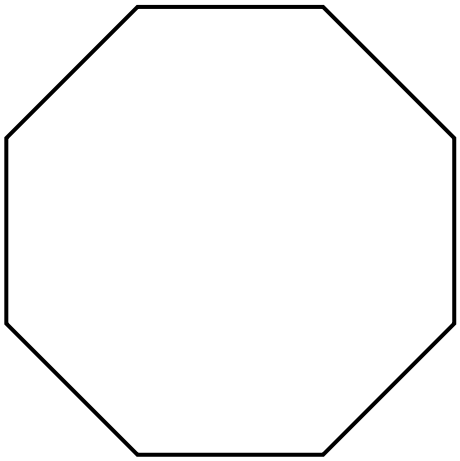
**Area of trapezium** $= \frac{1}{2}(a + b)h$




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



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



**(a) _____ [1]**

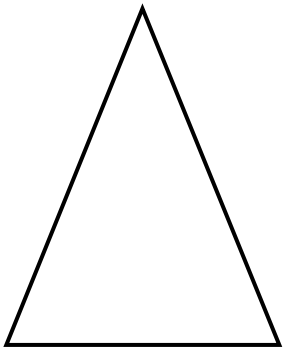
**(b) What type of triangle is shown below?**
**Choose your answer from the following list.**

**Equilateral**

**Isosceles**

**Scalene**

**Put a ring around the correct answer.**



**[1]**

**(c) A model of a solid is provided for this question. What is the mathematical name of the solid?**

**(c) _____ [1]**

**2 Find the missing numbers.**

**(a) $7 \times \blacklozenge = 21$**

**(a) ♦ = _____ [1]**

**(b) $6 + \spadesuit = 12$**

**(b) ♠ = _____ [1]**

(c) 29 – ♥ = 11

(c) ♥ = _____ [1]

(d) 42 ÷ ♣ = 6

(d) ♣ = _____ [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 15729 to 2 significant figures.**

**(b)** _____ **[1]**

**(c) Calculate.**

**28.4 × 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.**

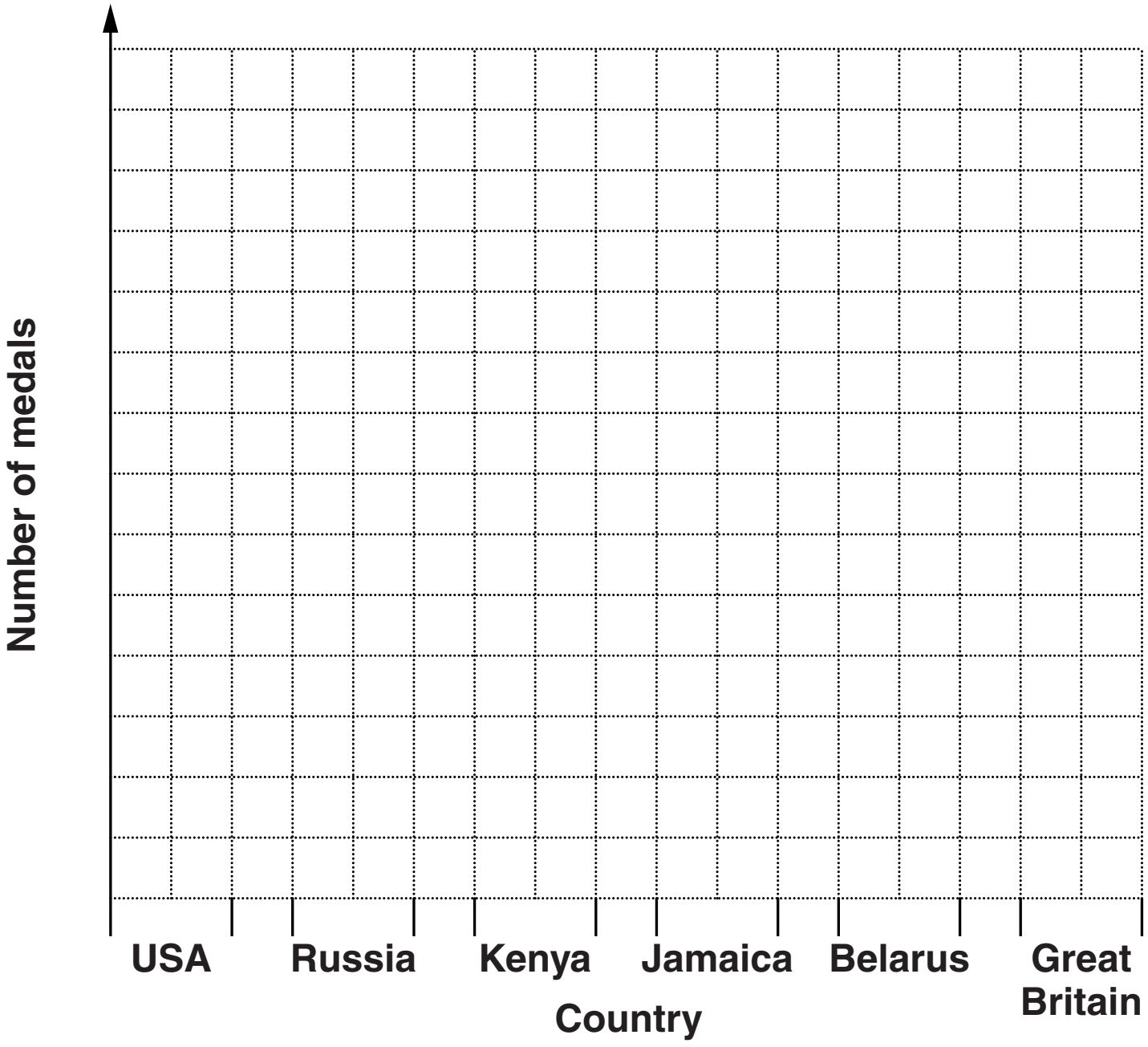
**Find the next term.**

**(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.**

**Distance in miles = Distance in kilometres ÷ 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 °C. By evening the temperature had fallen by 5 degrees.**

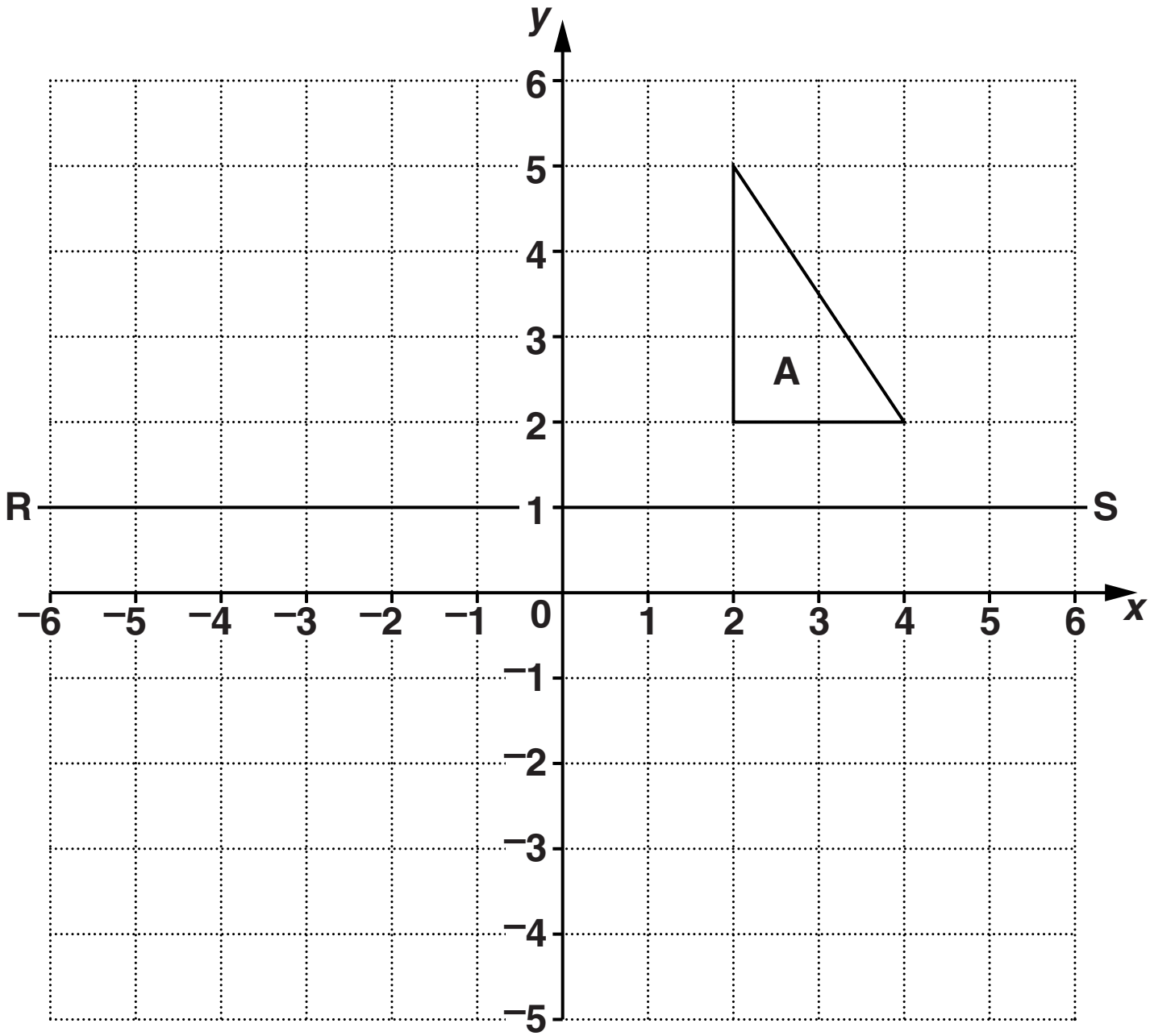
**What was the temperature in the evening?**

**(a) _____ °C [1]**

**(b) What temperature is 4 degrees warmer than −1 °C?**

**(b) _____ °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]**

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**TURN OVER FOR QUESTION 13**

**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]**

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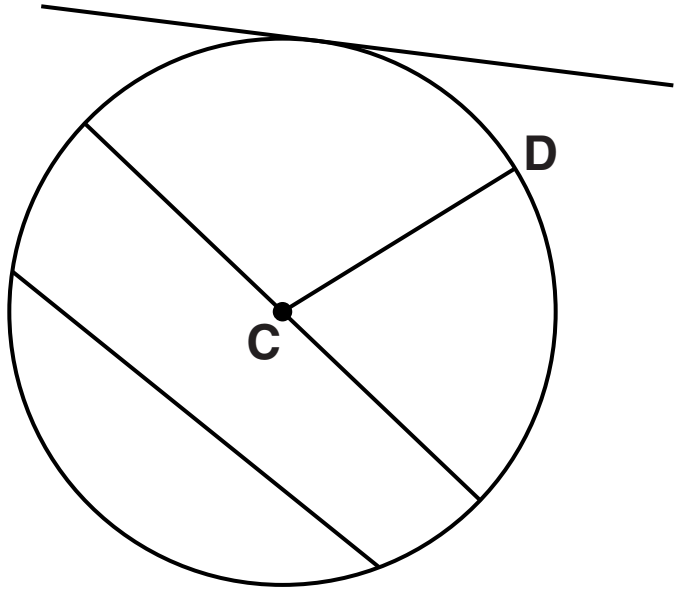
**TURN OVER FOR QUESTION 15**

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

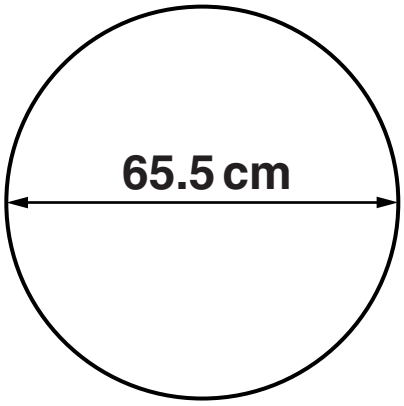



**(i) What is the mathematical name for the line CD?**

**(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 as shown on the following diagram.**




**On one journey each wheel rotated 3509 times.**

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

**(b) _____ km [4]**

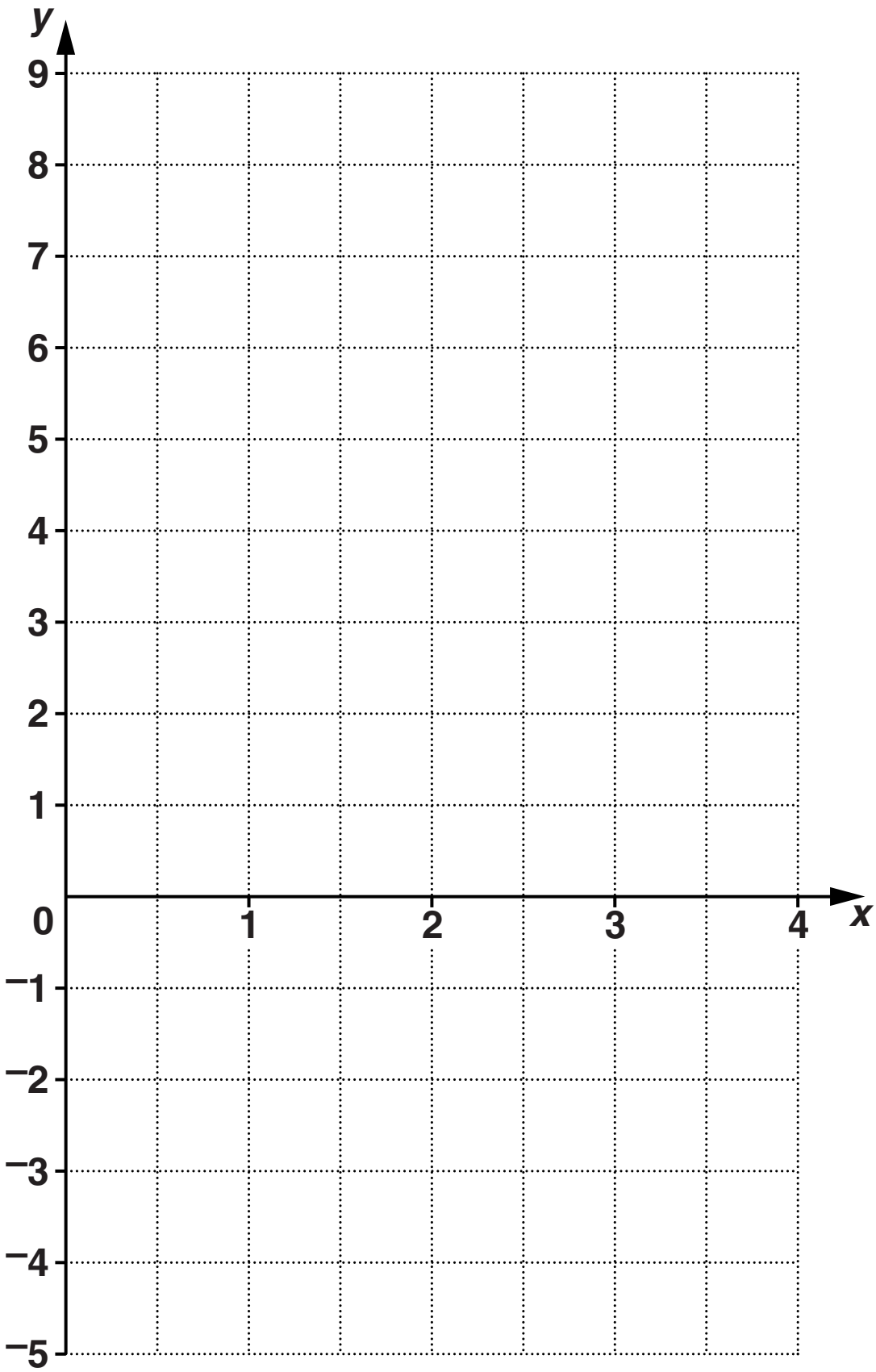
**16 (a) Complete this table for $y = 3x - 4$. (There are two missing values.)**

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

**[1]**

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

**(c) On your graph put a cross (✗) at the point where $3x - 4 = 0$.** **[1]**




**[2]**

**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 in the following table.**

| To the polling station | From the polling station |
|---|---|
| B | T |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

**[2]**

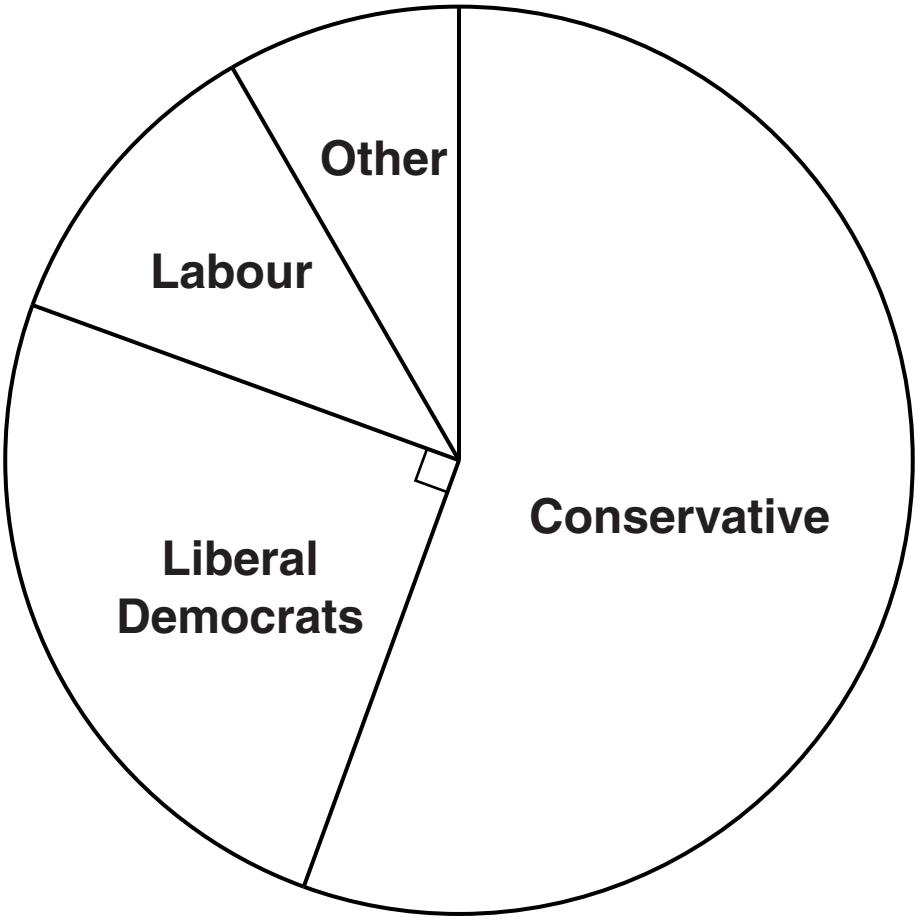
**(b) Rashid carried out a survey outside a polling station.**
**He asked 500 voters how they travelled to the polling station.**
**His results are shown in the table below.**

| 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]**

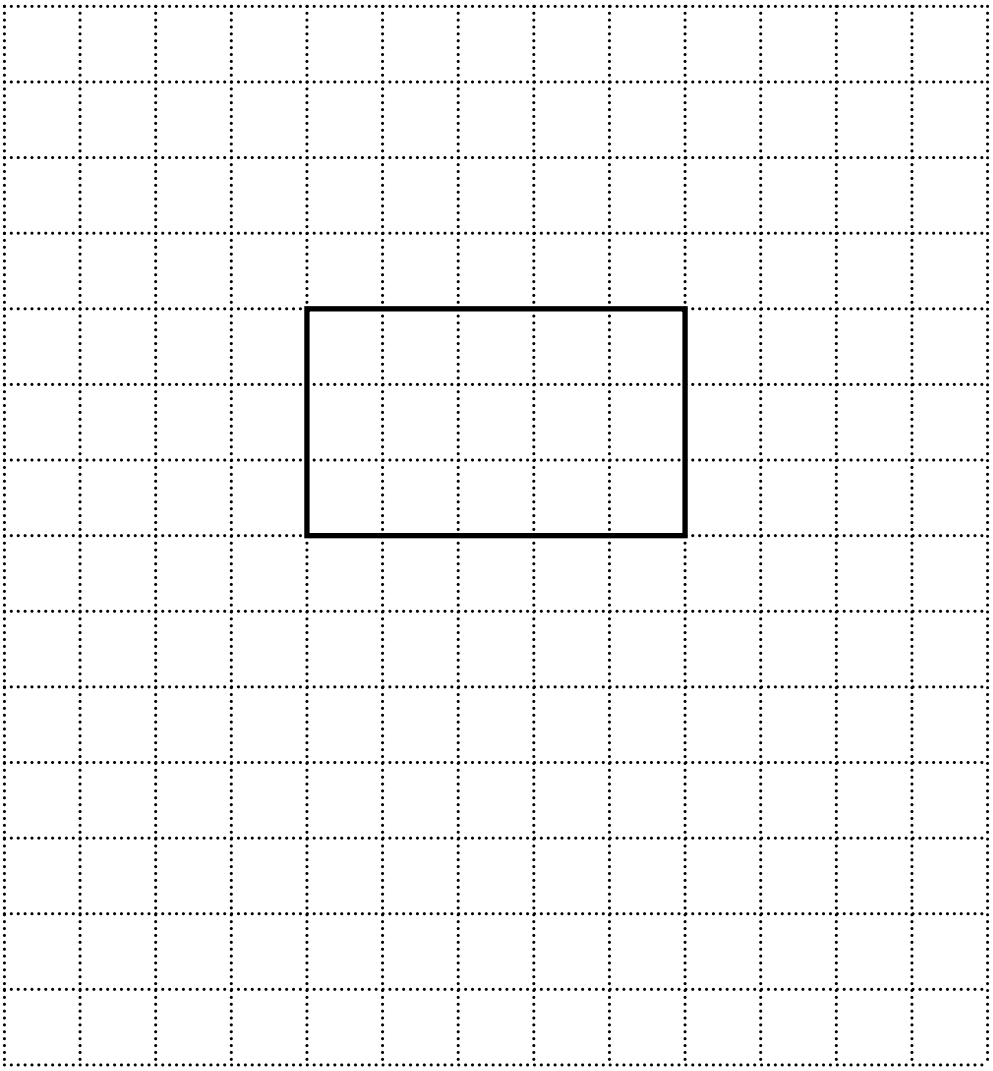
**(ii) How many people voted for the Liberal Democrats?**

**(ii) _____ [1]**

**(iii) How many people voted Conservative?**

**(iii) _____ [3]**

**18 (a) A model of cuboid A is provided.**
**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]**

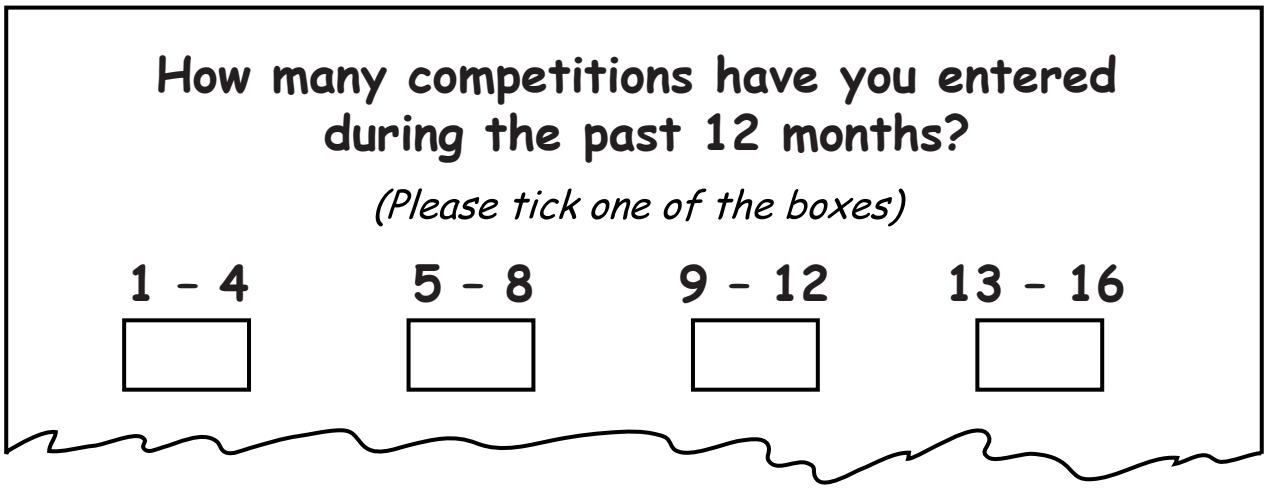
**(b) At Rumblestone Station northbound trains stop every 20 minutes and southbound trains stop every 16 minutes. Two trains stopped together at the station at 15 00.**

**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.**




**Make one criticism of this question.**

_____

_____

_____ **[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 | | |
|---|---|---|---|
| $40 \leqslant s < 46$ | 4 | | |
| $46 \leqslant s < 52$ | 12 | | |
| $52 \leqslant s < 58$ | 19 | | |
| $58 \leqslant s < 64$ | 5 | | |

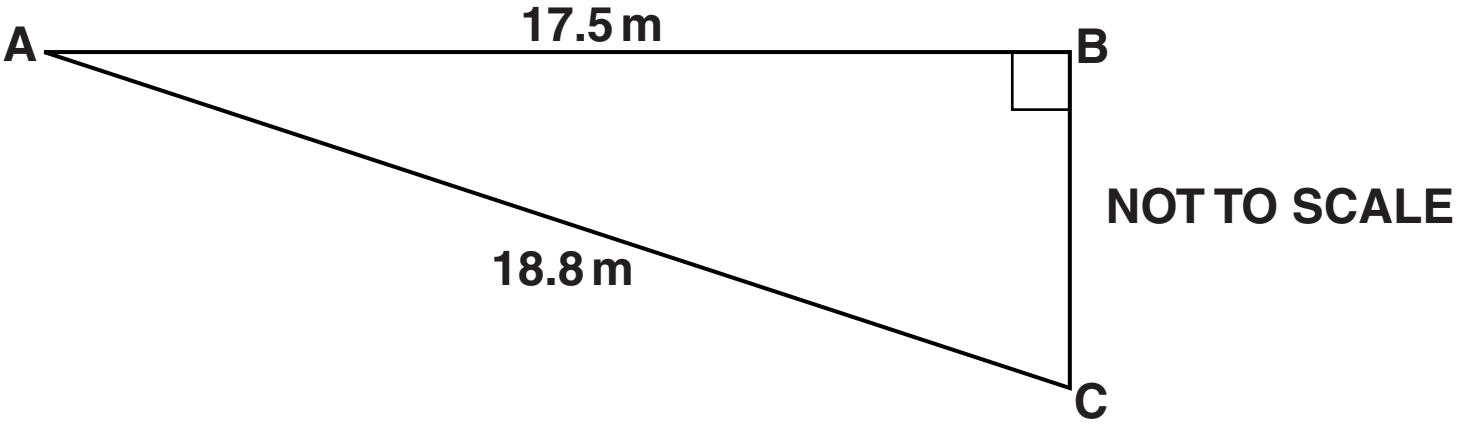
**Calculate an estimate of the mean length of her javelin throws.**

**(c) _____ m [4]**

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

_____ **[2]**

**22 ABC is a right-angled triangle. Look at the information on the following diagram.**




**Calculate BC.**
**Give your answer correct to 2 decimal places.**

_____ **m** **[4]**

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