

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**A502/01**

**MATHEMATICS A**

**Unit B (Foundation Tier)**

**MONDAY 13 JUNE 2011: Afternoon**

**DURATION: 1 hour**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the question paper.**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Tracing paper (optional)**

<p><b><u>WARNING</u></b> <b>No calculator can be used for this paper.</b></p>
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**This paper has been pre modified for carrier language  
OCR is an exempt Charity**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

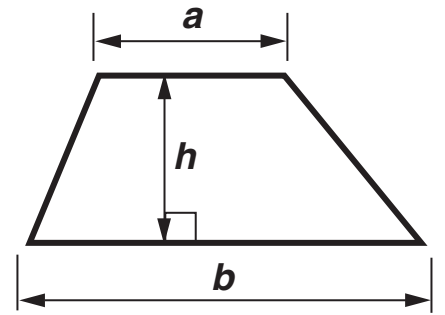
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**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

## **INFORMATION FOR CANDIDATES**

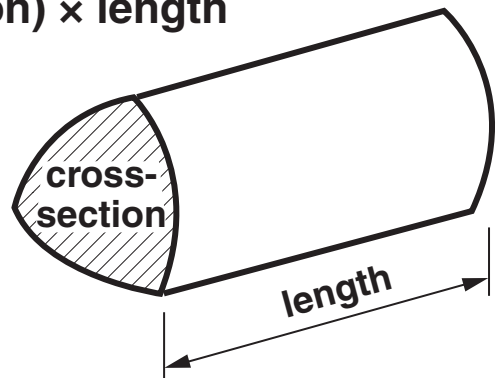
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (\*).**
- **The total number of marks for this paper is 60.**

# FORMULAE SHEET: FOUNDATION TIER

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



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



**1 (a) Work out.**

$$9 + 35 - 38$$

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

**(b) Work out.**

$$0.9 + 35 - 3.8$$

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

**(c) Brian wants to work out  $6.72 \div 0.2$ .**

**Complete his work.**

$$0.2 \times \underline{\hspace{2cm}} = 2$$

$$6.72 \times 10 = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \div 2 = 33.6$$

$$\text{so } 6.72 \div 0.2 = \underline{\hspace{2cm}}$$

**[3]**

**2 (a) Work out.**

$$\frac{5}{8} + \frac{3}{8} - \frac{7}{8}$$

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

**(b) Lorna is given £10 by her grandfather.**

**Lorna saves  $\frac{2}{5}$  of this money.**

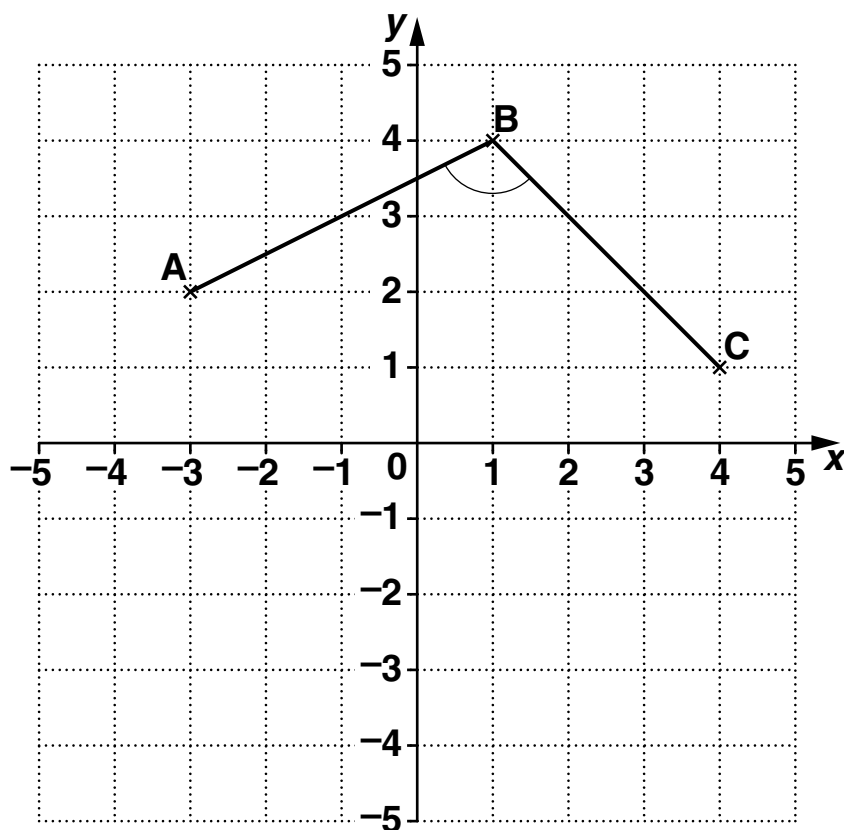
**(i) How much of the £10 does Lorna save?**

**(b)(i) £ \_\_\_\_\_ [2]**

**(ii) What fraction of the £10 does Lorna not save?**

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

3 Use the grid below to answer the questions that follow.



(a) Write down the coordinates of point A.

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

(b) Measure BC in millimetres.

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



**(c) ABCD is a parallelogram.**

**Plot and label point D and write down its coordinates.**

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

**(d) What is the correct mathematical name for the angle ABC?**

**(d) \_\_\_\_\_ [1]**

- 4 (a) Cheryl buys four pieces of wood.  
The lengths are 2.4 m, 3.25 m, 2.15 m and 150 cm.**

**How many centimetres longer is the longest piece  
of wood than the shortest piece?**

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

**(b) Cheryl wants to make some shelves.**

**Complete the bill.**

<b>Wood</b>	<b>£ 15.00</b>
<b>2 boxes of screws @ £1.50 each box</b>	<b>£ _____</b>
<b>10 wall brackets @ _____ each</b>	<b>£ 7.00</b>
<b>Cost of all items</b>	<b>£ _____</b>
<b>Delivery charge (10% of cost of all items)</b>	<b>£ _____</b>
<b>Total</b>	<b>£ _____</b>

**[5]**

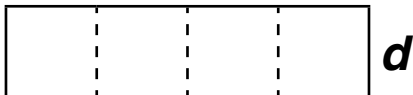
5 (a) Each side of a square has length  $d$ .



Write an expression for the perimeter of the square.

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

(b) Four squares like the one in part (a) are joined in a row as shown.



Write an expression for the PERIMETER of this shape.

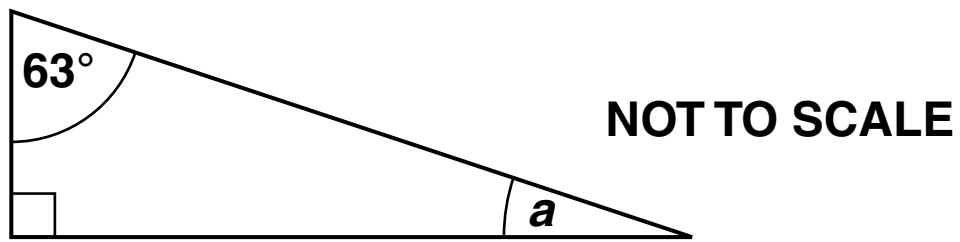
Give your answer in its simplest form.

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

**(c) How many of these squares, joined in a row, will have a perimeter of  $16d$ ?**

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

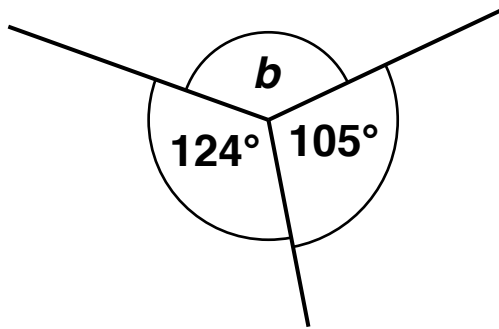
- 6 (a) The diagram shows a right-angled triangle.



Work out the size of angle  $a$ .

(a) \_\_\_\_\_ ° [2]

- (b) In the diagram below, work out the size of angle  $b$ .  
Give a reason for your answer.



NOT TO SCALE

\_\_\_\_\_° because \_\_\_\_\_

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

**(c) (i) Show that the size of an interior angle of a regular octagon is  $135^\circ$ . [2]**

**(ii)\* Bas is tiling a floor.  
He has lots of identical tiles.  
Each tile is a regular octagon.  
He knows these octagonal tiles will not fit together without leaving gaps between them.  
He buys some square tiles.**

**Bas says, 'Now I can tile the floor using some of the octagonal tiles and some of the square tiles without leaving any gaps.'**

**Explain why Bas may be right. [4]**



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**TURN TO PAGE 18 FOR QUESTION 7**



8 (a) What type of correlation is shown in each of the three diagrams below?

Diagram 1

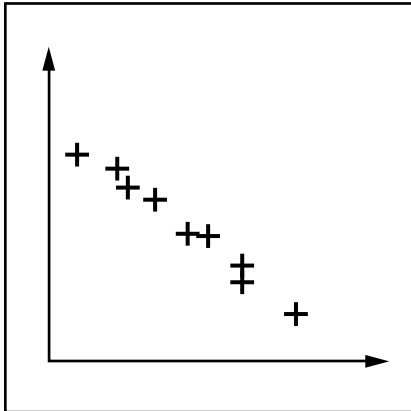


Diagram 2

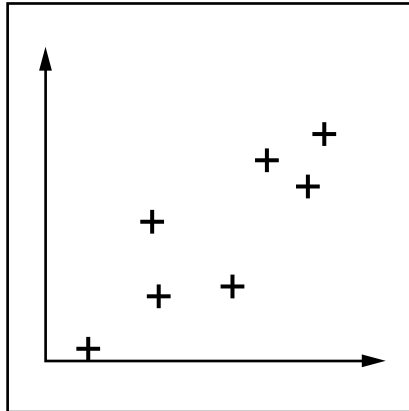
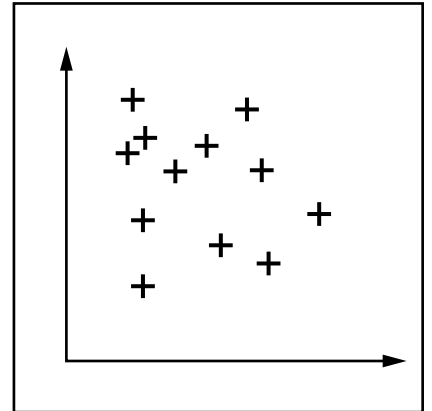


Diagram 3



(a) Diagram 1 \_\_\_\_\_

Diagram 2 \_\_\_\_\_

Diagram 3 \_\_\_\_\_ [3]

**(b) Clyde always starts a journey with the fuel tank in his car full.  
When the journey is over he records the following.**

- the length of the journey
- how many litres of fuel he puts into the tank to fill it again

**This table gives details of some of his recent journeys.**

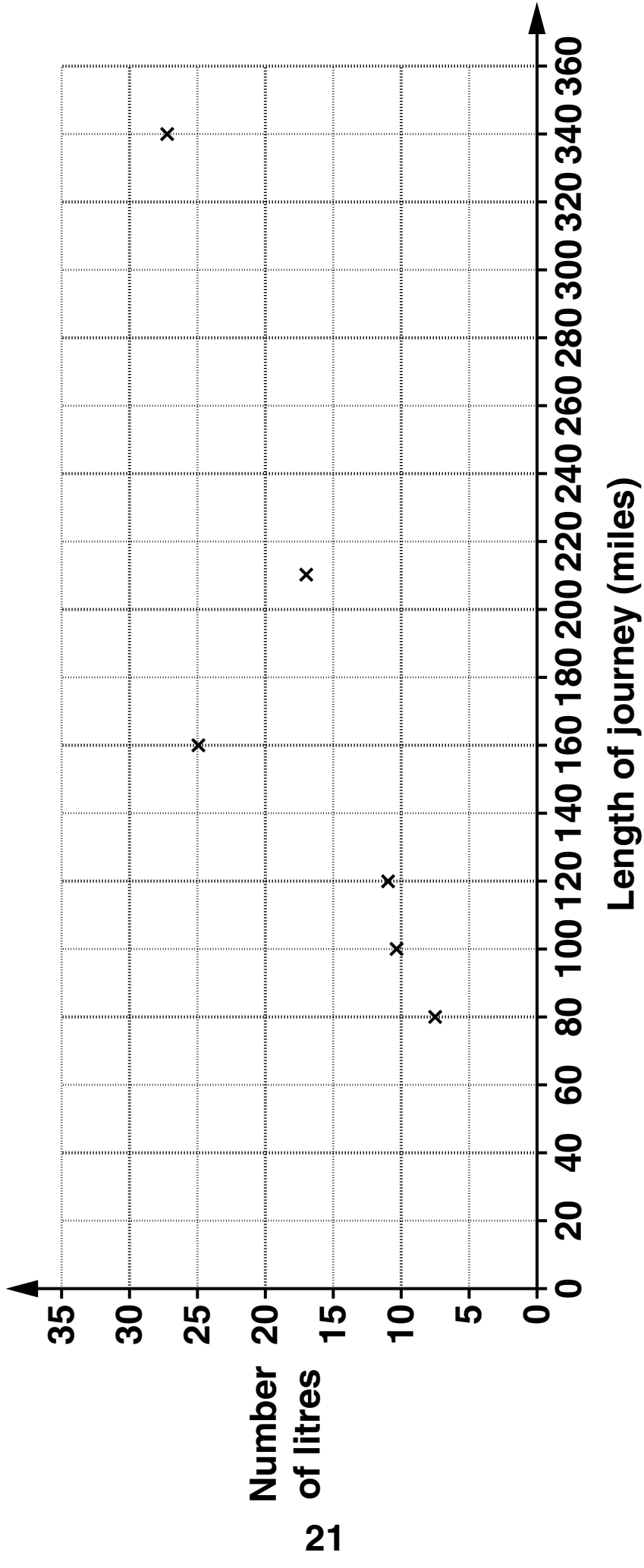
<b>Length of journey (miles)</b>	120	210	80	340	100	160	350	60	96	260
<b>Number of litres</b>	11	17	7.5	27.2	10.2	25	30	6	8	20.5

- (i) Complete the scatter graph opposite by plotting the last four points. [2]**
- (ii) Draw a line of best fit on your scatter graph. [1]**
- (iii) Use your line of best fit to estimate the number of litres of fuel Clyde would need to fill the tank after a journey of 300 miles.**

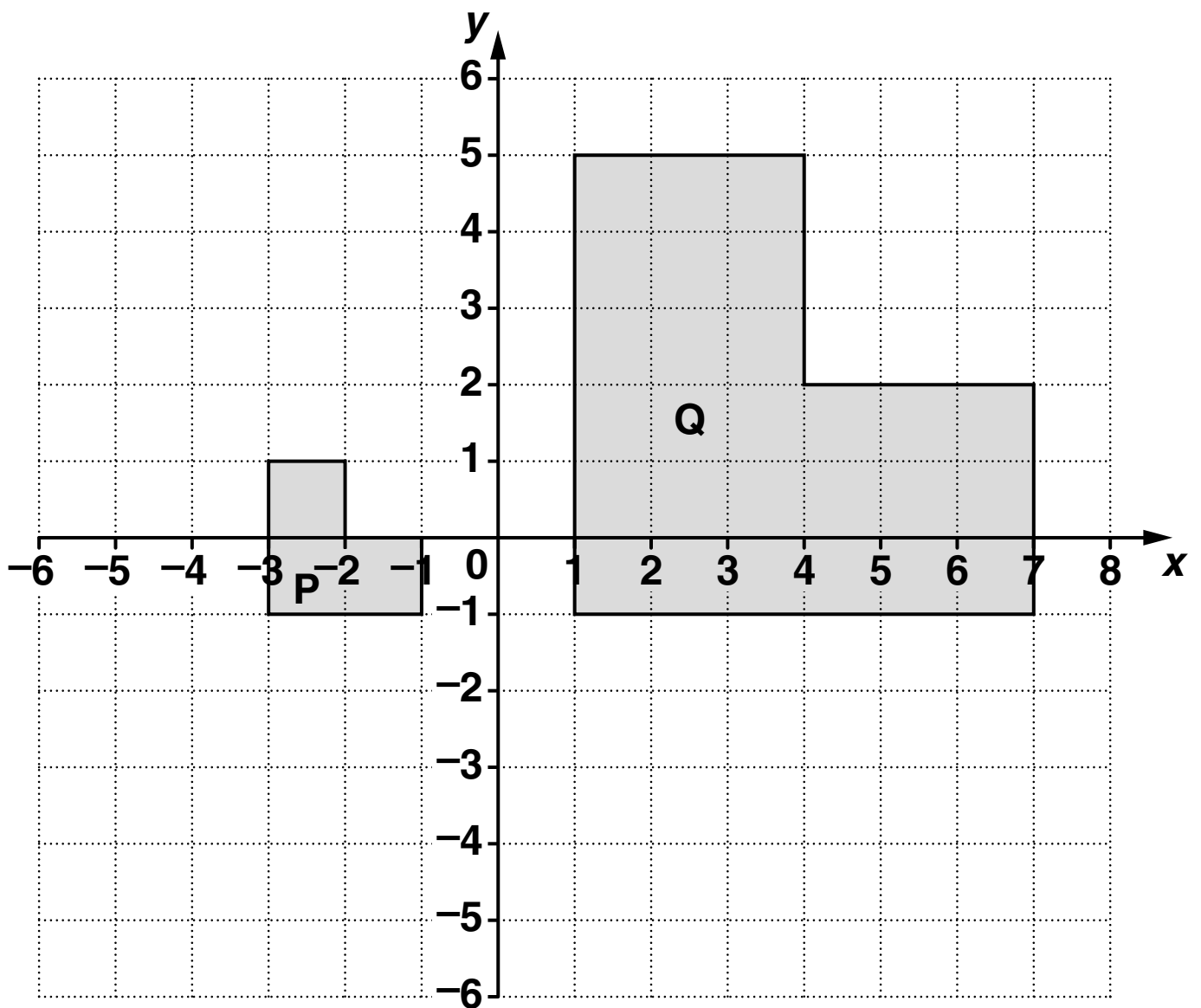
**(b)(iii) \_\_\_\_\_ litres [1]**

- (iv) On one of these journeys Clyde was delayed by roadworks and used much more fuel than usual.**

**Put a ring round the cross representing this journey. [1]**



9 Use the grid below to answer the questions that follow.



**(a) Describe fully the SINGLE transformation that maps shape P onto shape Q.**

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**[3]**

**(b) Rotate shape P  $180^\circ$  about the point  $(-2, -2)$ .  
Label the image R.**

**[2]**

**10 Mark is organising a party for his group of 17 Scouts.**

**(a) (i) Each Scout will need  $\frac{3}{4}$  of a pizza.**

**How many pizzas should Mark buy?**

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

**(ii) The pizzas normally cost £2.60 each.  
Mark is given a discount of 15% off this price.**

**How much does Mark pay for each pizza?**

**(ii) £ \_\_\_\_\_ [3]**



**(b) The area of the base of a can of lemonade is  $32.4 \text{ cm}^2$ .**

**What is this area in  $\text{mm}^2$ ?**

**(b) \_\_\_\_\_  $\text{mm}^2$  [2]**

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