



**GCSE**

**3300U20 – 1**

**WEDNESDAY, 12 JUNE 2024 – MORNING**

**MATHEMATICS**

**UNIT 2: CALCULATOR – ALLOWED  
FOUNDATION TIER**

**1 hour 30 minutes plus your additional time  
allowance**

**A CALCULATOR WILL BE REQUIRED  
FOR THIS EXAMINATION**

**Surname:** \_\_\_\_\_

**First name(s):** \_\_\_\_\_

**Centre Number:** \_\_\_\_\_

**Candidate Number:**   0   \_\_\_\_\_

<b>For Examiner's use only</b>		
<b>Question</b>	<b>Maximum Mark</b>	<b>Mark Awarded</b>
<b>1.</b>	<b>4</b>	
<b>2.</b>	<b>5</b>	
<b>3.</b>	<b>5</b>	
<b>4.</b>	<b>5</b>	
<b>5.</b>	<b>2</b>	
<b>6.</b>	<b>2</b>	
<b>7.</b>	<b>4</b>	
<b>8.</b>	<b>4</b>	
<b>9.</b>	<b>3</b>	
<b>10.</b>	<b>2</b>	
<b>11.</b>	<b>3</b>	
<b>12.</b>	<b>5</b>	
<b>13.</b>	<b>5</b>	
<b>14.</b>	<b>4</b>	
<b>15</b>	<b>3</b>	
<b>16</b>	<b>3</b>	
<b>17.</b>	<b>3</b>	
<b>18.</b>	<b>3</b>	
<b>Total</b>	<b>65</b>	

**(Turn over)**

**ADDITIONAL MATERIALS**

A ruler, a protractor and a pair of compasses may be required.

**ITEMS INCLUDED WITH QUESTION PAPER**

A separate Formula List.

A separate Diagram Booklet.

Models for Question 3 (b) and Question 13 (a).

**The Diagram Booklet MUST be handed in to the invigilators and sent for marking.**

**INSTRUCTIONS TO CANDIDATES**

**Use black ink, black ball – point pen, black felt tip or your usual method.**

**Write your name, centre number and candidate number in the spaces on the front cover.**

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**If you run out of space, use the additional page(s) at the back of the booklet.**

**Question numbers must be given for the work written on the additional page(s).**

**Take  $\pi$  as  $3 \cdot 14$  or use the  $\pi$  button on your calculator.**

**(Turn over)**

**INFORMATION FOR CANDIDATES**

**You should give details of your method of solution when appropriate.**

**Unless stated, diagrams are not drawn to scale.**

**Scale drawing solutions will not be acceptable where you are asked to calculate.**

**The number of marks is given in brackets at the end of each question or part – question.**

**In question 8, the assessment will take into account the quality of your linguistic and mathematical organisation and communication.**

**In question 2 (c), the assessment will take into account the quality of your linguistic and mathematical accuracy in writing.**

**(Turn over)**

1. Look at the calculations for Question 1 in the separate Diagram Booklet.

Fill in the boxes to make each calculation correct.

Space for working:

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[4 marks]

2. (a) There is one square number between **180** and **200**

What is this square number?

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[1 mark]

- (b) A number has exactly **FOUR** factors.

All of the factors are less than **30**

Three of the factors are **1, 2** and **26**

What is the other factor?

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[1 mark]

continued on the next page . . .

(Turn over)

**Question 2 continued**

**2. (c) IN THIS PART OF THE QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ACCURACY IN WRITING.**

**Which length is exactly halfway between 280 m and 410 m?  
You must show all your working.**

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**[2 marks + 1 mark W]**

**(Turn over)**

3. (a) Look at the diagrams for Question 3 (a) in the separate Diagram Booklet.

The diagrams show shape (i) and shape (ii).

Write down the special name of each shape.

Shape (i) is a \_\_\_\_\_  
[1 mark]

Shape (ii) is a \_\_\_\_\_  
[1 mark]

- (b) Ask for the model for Question 3 (b).

The model is a **3D** shape.

Write down the special name of the **3D** shape.

The shape is a \_\_\_\_\_  
[1 mark]

continued on the next page . . .

(Turn over)

**Question 3 continued**

**3. (c) Look at the diagram for Question 3 (c) in the separate Diagram Booklet.**

**A parallelogram is shown.**

**(i) What is the order of rotational symmetry of the parallelogram?**

**Circle the correct answer.**

<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
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**[1 mark]**

**(ii) How many lines of symmetry does the parallelogram have?**

**Circle the correct answer.**

<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
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**[1 mark]**

**(Turn over)**

4. (a) Circle ALL the fractions that are equal to  $\frac{5}{6}$

$\frac{45}{56}$	$\frac{55}{66}$	$\frac{45}{46}$	$\frac{35}{42}$	$\frac{51}{61}$
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[2 marks]

(b) Calculate  $\frac{\sqrt{0 \cdot 64}}{4^2}$

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[1 mark]

continued on the next page . . .

(Turn over)

## Question 4 continued

4. (c) Here are four digits.

7      3      6      5

Write the four digits in the following boxes to form two 2 – digit numbers.

You need to arrange the four digits so that the **PRODUCT** is as **SMALL** as possible.

You can use each digit only once.

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Space for working:

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[2 marks]

(Turn over)

5. Ben thinks of a number sequence.

The difference between each term and the next is the same.

The first term in the sequence is 11

The fourth term in the sequence is 23

What are the values of the second and third terms in Ben's sequence?

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Second term = \_\_\_\_\_

Third term = \_\_\_\_\_

[2 marks]

6. Look at the diagram for Question 6 in the separate Diagram Booklet.

In the diagram shown, the term in each box in the top two rows is found by using the following rule.

**The term in each box is the sum of the terms in the two boxes below it.**

Some terms are already shown.

Use the rule to write down the missing terms in the two empty boxes.

Space for working:

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[2 marks]

(Turn over)

7. (a) Jemma is asked to work out the following calculation.

$$10 + 4 \times 9$$

Jemma's method is

$$14 \times 9 = 126$$

**EXPLAIN** why Jemma's method is wrong.

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[1 mark]

continued on the next page . . .

(Turn over)

**Question 7 continued**

**7. (b) Sion is asked to answer the following question.**

**How many halves are there in 20?**

**Sion's method is**

$$20 \div 2 = 10$$

**EXPLAIN why Sion's method is wrong.**

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**[1 mark]**

**continued on the next page . . .**

**(Turn over)**

**Question 7 continued**

7. (c) Rebecca is asked to find the range of the numbers below.

7          1          20          14          11

Rebecca's method is

$$11 - 7 = 4$$

**EXPLAIN** why Rebecca's method is wrong.

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[1 mark]

continued on the next page . . .

(Turn over)

**Question 7 continued**

7. (d) Stef knows what  $\frac{1}{5}$  of Paulo's number is.

Using this information, **EXPLAIN** how Stef

can work out  $\frac{1}{10}$  of Paulo's number.

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[1 mark]

(Turn over)

**8. IN THIS QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION AND COMMUNICATION.**

**Dyfrig has 50 cards.**

**His cards are numbered from 1 to 50**

**Dyfrig puts a red sticker on every card that has a multiple of 6 on it.**

**He puts a blue sticker on every card that has a multiple of 8 on it.**

**Some cards will have both a blue sticker and a red sticker on them.**

**What numbers will be on these cards?**

**You must show all your working.**

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**[3 marks + 1 mark OC]**

9. Solve each of the following equations.

(a)  $\frac{x}{5} = 20$

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[1 mark]

(b)  $7m + 3 = 31$

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[2 marks]

(Turn over)

10. Evaluate  $55\%$  of  $42 \cdot 8$

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[2 marks]

(Turn over)

11. Look at the diagram for Question 11 in the separate Diagram Booklet.

The diagram IS drawn to scale.

The diagram shows the line  $AB$ .

$ABC$  is a large triangle, where

$AC = 16$  m and  $BC = 13$  m

- (a) On the diagram, draw a scale drawing of this triangle using the following scale:

**1 cm REPRESENTS 2 metres.**

The side  $AB$  has already been drawn accurately.

[2 marks]

- (b) What is the size of angle  $ACB$ ?

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[1 mark]

(Turn over)

12. (a) How many minutes are there in 1 day  
and 5 hours?

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1 day and 5 hours = \_\_\_\_\_ minutes

[2 marks]

continued on the next page . . .

(Turn over)

**Question 12 continued**

**12. (b) Look at the diagram for Question 12 (b) in the separate Diagram Booklet.**

**The diagram shows part of a measuring tape used in a long – jump competition.**

**The arrow indicates the distance jumped by the competitor who came second.**

**The winning jump was 676 cm long.**

**What was the difference between the lengths of these jumps?**

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**[3 marks]**

**(Turn over)**

13. (a) Look at the diagram for Question 13 (a) in the separate Diagram Booklet.

Ask for the model for Question 13 (a).

The model is a cuboid measuring  
7 cm by 5 cm by 3 cm.

On the grid, draw an isometric representation  
of the cuboid measuring  
7 cm by 5 cm by 3 cm.

[2 marks]

(b) Calculate the volume of the cuboid.

You must give the units of your answer.

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[3 marks]

14. A children's play area contains a large number of coloured balls.

Some are yellow, some are red, some are blue and the others are pink.

(a) A ball is chosen at random from the play area.

Complete the table below to find the probability of choosing a pink ball.

<b>Colour</b>	<b>Probability</b>
<b>Yellow</b>	<b>0.54</b>
<b>Red</b>	<b>0.12</b>
<b>Blue</b>	<b>0.25</b>
<b>Pink</b>	

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(Turn over)

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[2 marks]

14. (b) There are **575** blue balls in the play area.

What is the total number of balls in the play area?

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[2 marks]

15. Use the formula  $v = u + at$  to find the value of  $t$  when  $v = 51 \cdot 3$ ,  $u = 2 \cdot 3$  and  $a = 9 \cdot 8$

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[3 marks]

(Turn over)



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**Answer is \_\_\_\_\_ hours and \_\_\_\_\_ minutes**  
**[3 marks]**

17. Calculate the area of a circle with  
a radius of  $8.7$  cm.

Give your answer in  $\text{cm}^2$ , correct to the nearest  
whole number.

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Area = \_\_\_\_\_  $\text{cm}^2$

[3 marks]

(Turn over)

18. The employees of a company belong to one of three departments: MANAGEMENT (M), SALES (S) or DISTRIBUTION (D).

Look at the diagram for Question 18 in the separate Diagram Booklet.

The diagram is NOT drawn to scale.

The diagram is a sketch of a pie chart.

The diagram shows the proportion of employees working in each of these departments.

An employee is chosen at random.

Calculate the probability that this employee works in the DISTRIBUTION department.

Give your answer as a decimal.

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**[3 marks]**

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**END OF PAPER**  
**TOTAL 65 MARKS**

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**(Turn over)**







**GCSE**

**3300U20-1**

**WEDNESDAY, 12 JUNE 2024 – MORNING**

**MATHEMATICS**

**UNIT 2: CALCULATOR – ALLOWED**

**FOUNDATION TIER**

**The Diagram Booklet MUST be handed in  
to the invigilators and sent for marking.**

# **Diagram Booklet**

**Surname:** \_\_\_\_\_

**First name(s):** \_\_\_\_\_

**Centre Number:** \_\_\_\_\_

**Candidate Number:** 0 \_\_\_\_\_

### Question 1

$$\boxed{\text{£}1.43} + \boxed{35\text{p}} = \boxed{\text{£} \underline{\hspace{2cm}}}$$

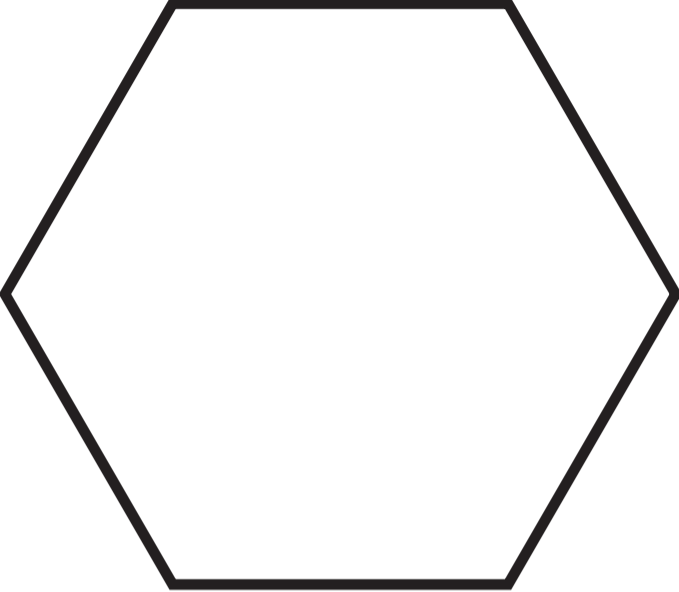
$$\boxed{\underline{\hspace{2cm}}\text{p}} + \boxed{\text{£}3.58} = \boxed{362\text{p}}$$

$$\boxed{9} \times \boxed{64\text{p}} = \boxed{\text{£} \underline{\hspace{2cm}}}$$

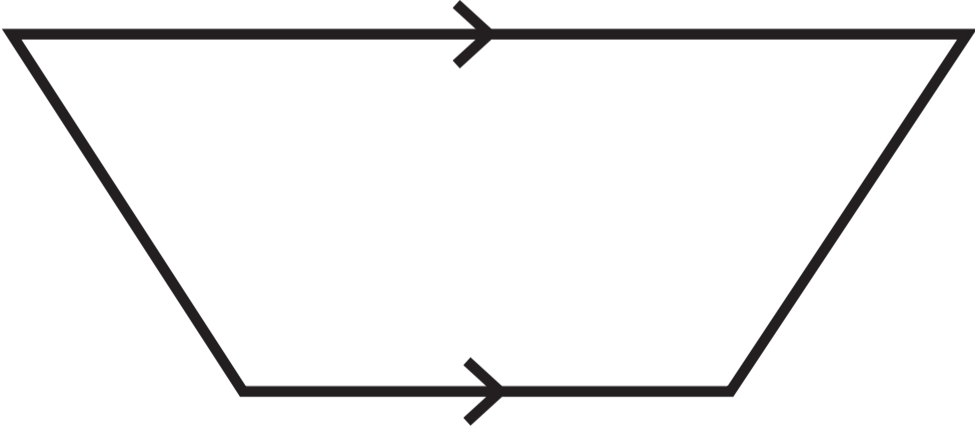
$$\boxed{13} \times \boxed{\underline{\hspace{2cm}}\text{p}} = \boxed{\text{£}15.73}$$

**Question 3 (a)**

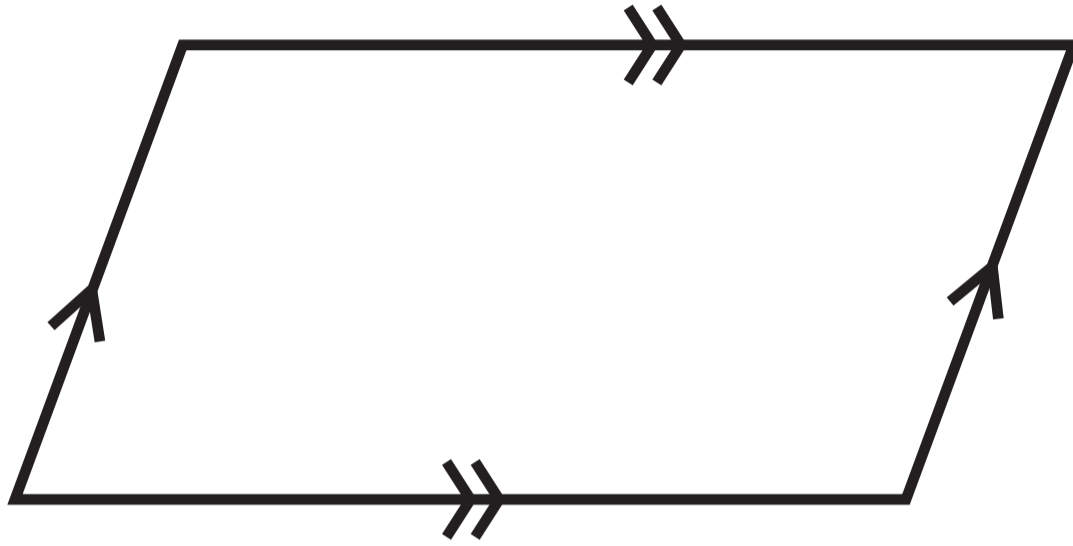
**Shape (i)**



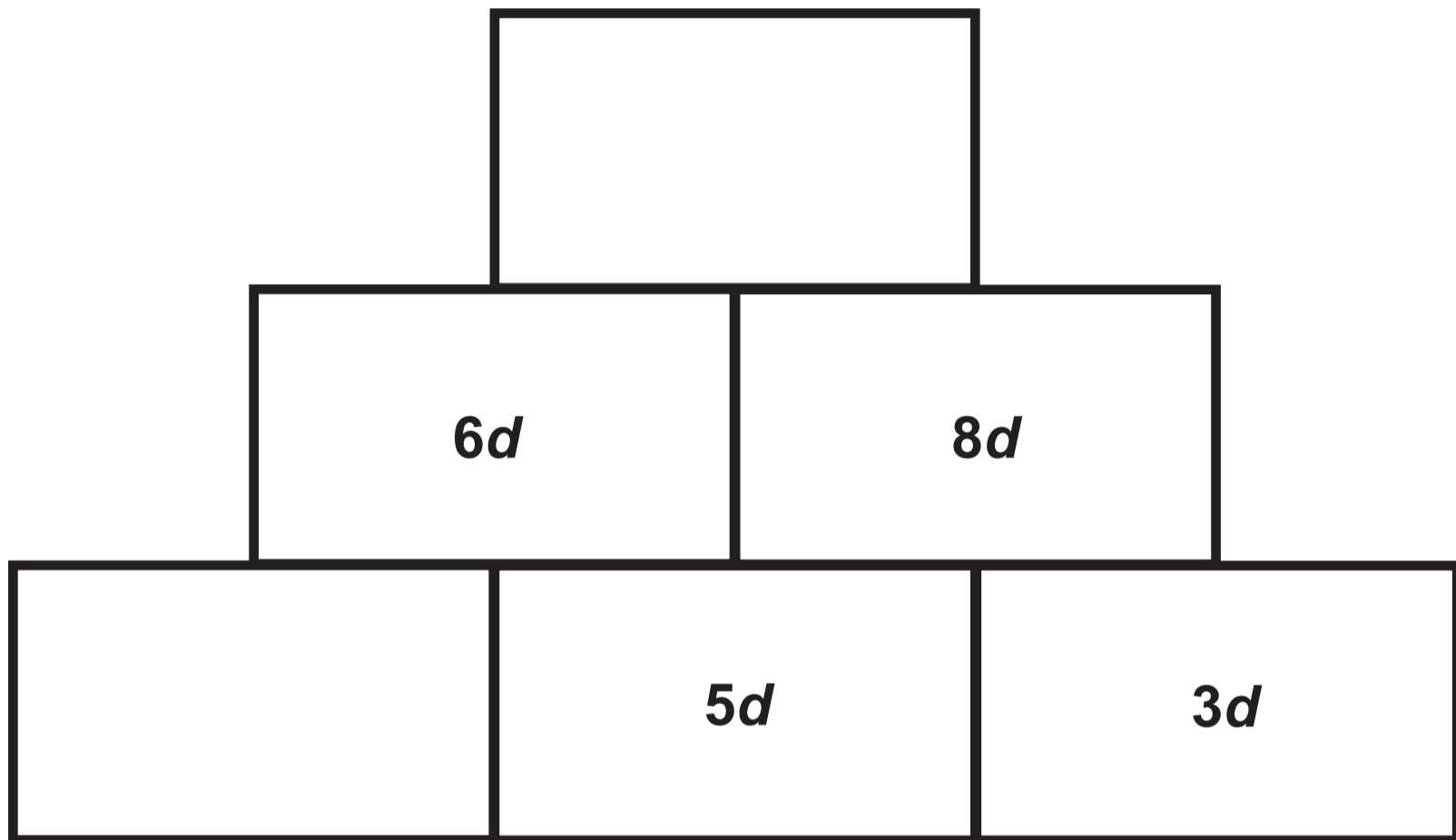
**Shape (ii)**



**Question 3 (c)**



## Question 6

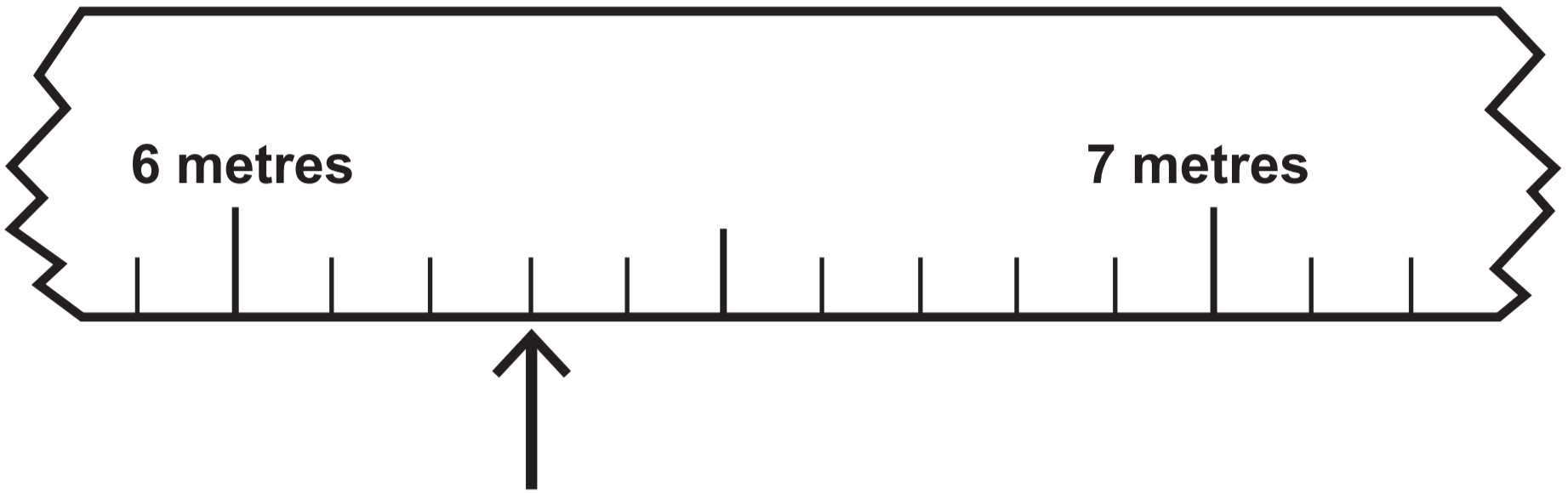


## Question 11

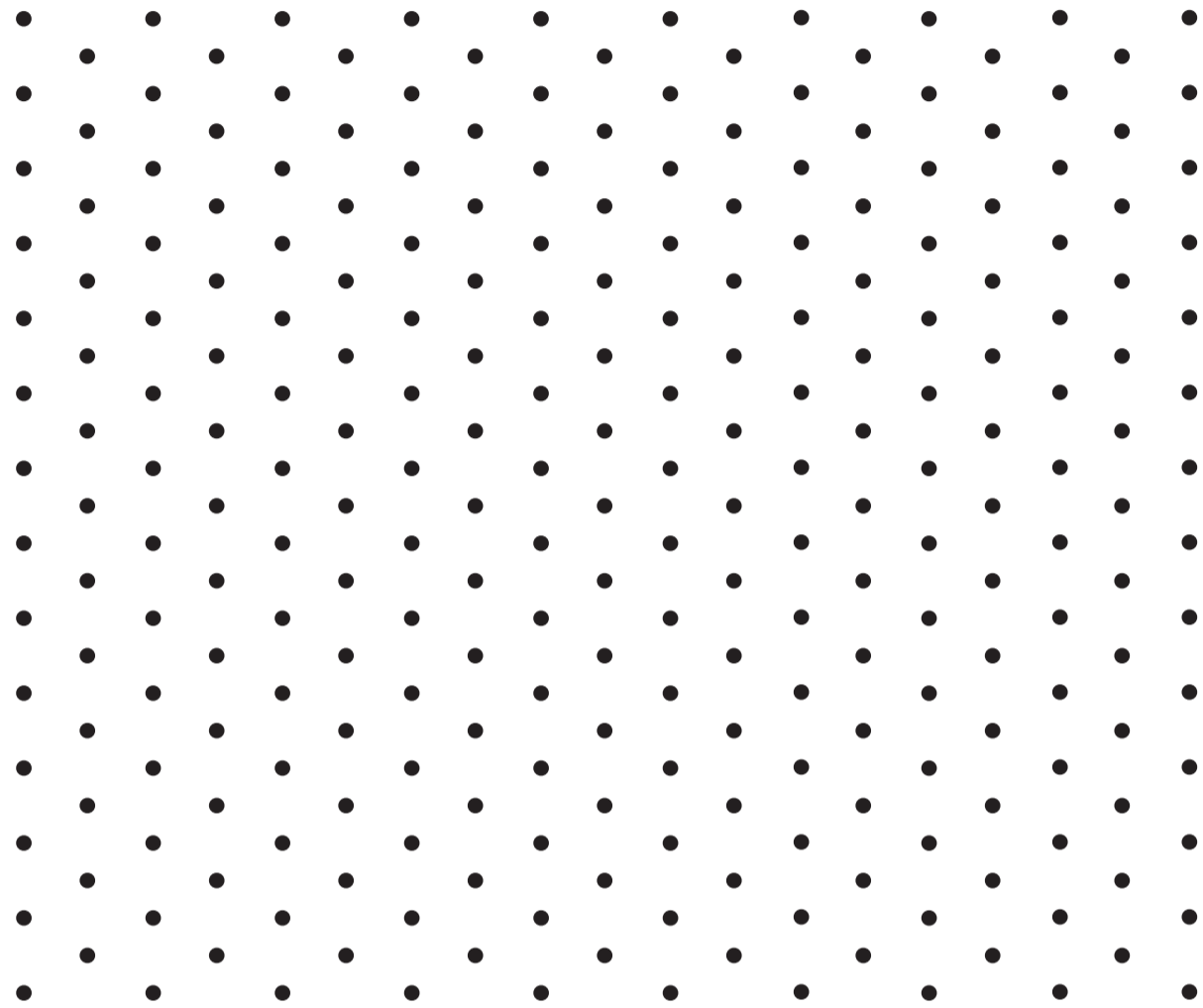
Scale: 1 cm REPRESENTS 2 metres



Question 12 (b)



# Question 13 (a)



## Question 18

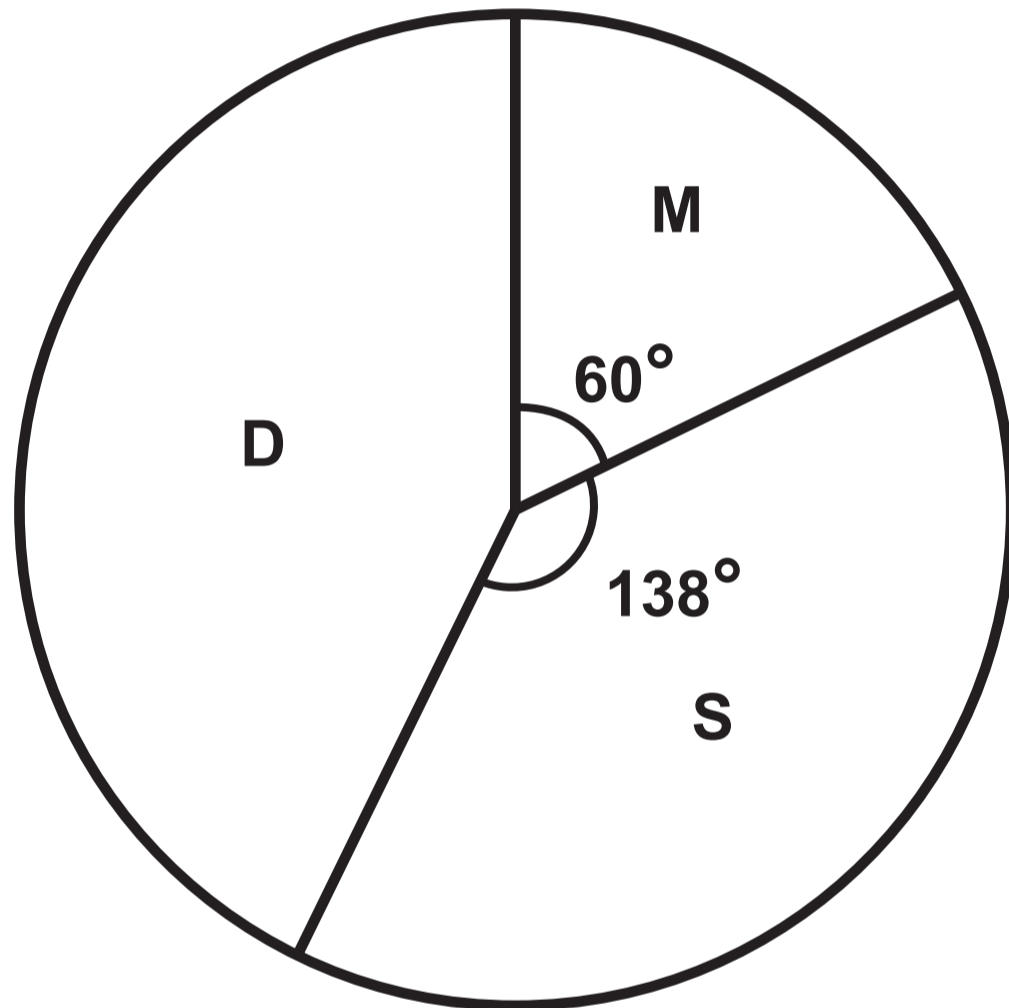
Diagram NOT drawn to scale

Key:

M = MANAGEMENT

S = SALES

D = DISTRIBUTION



**GCSE  
MATHEMATICS  
and  
NUMERACY**



**FORMULA LIST  
FOUNDATION TIER  
GCSE**

**You must not write on these formula pages.**

**Anything you write on these formula pages will gain NO credit.**

## Formula List – Foundation Tier

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

