



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 _____

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

(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.

(Turn over)

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 π as $3 \cdot 14$ or use the π 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.

(Turn over)

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

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:

7

[4 marks]

(Turn over)

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

What is this square number?

[1 mark]

continued on the next page . . .

(Turn over)

Question 2 continued

- (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?**

[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.

(Turn over)

[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]

continued on the next page . . .

(Turn over)

Question 3 continued

**3. (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.

0	1	2	3	4
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[1 mark]

continued on the next page . . .

(Turn over)

Question 3 (c) continued

- 3. (c) (ii) How many lines of symmetry does the parallelogram have?
Circle the correct answer.**

0	1	2	3	4
----------	----------	----------	----------	----------

[1 mark]

(Turn over)

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

$\frac{45}{56}$	$\frac{55}{66}$	$\frac{45}{46}$	$\frac{35}{42}$	$\frac{51}{61}$
-----------------	-----------------	-----------------	-----------------	-----------------

[2 marks]

- (b) Calculate $\frac{\sqrt{0.64}}{4^2}$

[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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continued on the next page . . .

(Turn over)

Question 4 (c) continued

Space for working:

[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?

Second term = _____

Third term = _____

[2 marks]

(Turn over)

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:

(Turn over)

[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.

[1 mark]
(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.

[1 mark]

(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.

(Turn over)

[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.

[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.

continued on the next page . . .

(Turn over)

Question 8 continued

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.

(Turn over)

9. Solve each of the following equations.

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

[1 mark]

continued on the next page . . .

(Turn over)

Question 9 continued

9. (b) $7m + 3 = 31$

[2 marks]**(Turn over)**

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

[2 marks]

continued on the next page . . .

(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]

continued on the next page. . .

(Turn over)

Question 11 continued

11. (b) What is the size of angle ACB ?

[1 mark]

(Turn over)

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

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.

continued on the next page . . .

(Turn over)

Question 12 (b) continued

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

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

40

[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]

continued on the next page . . .

(Turn over)

Question 13 continued

13. (b) Calculate the volume of the cuboid.

You must give the units of your answer.

[3 marks]

(Turn over)

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.

Colour	Probability
Yellow	0.54
Red	0.12
Blue	0.25
Pink	

continued on the next page . . .

(Turn over)

Question 14 (a) continued

[2 marks]

continued on the next page . . .

(Turn over)

Question 14 continued

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

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

[2 marks]
(Turn over)

[3 marks]

(Turn over)

16. What is $\frac{1}{3}$ of the time difference between 18:30 today and 10:30 tomorrow?

Give your answer in HOURS AND MINUTES.

You must show all your working.

50

**Answer is _____ hours and
_____ minutes**

[3 marks]

(Turn over)

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

Give your answer in cm^2 , correct to the nearest whole number.

Area = _____ 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.

continued on the next page . . .

(Turn over)

Question 18 continued

An employee is chosen at random.

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

Give your answer as a decimal.

(Turn over)

[3 marks]

END OF PAPER
TOTAL 65 MARKS

(Turn over)



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MATHEMATICS

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

**The Diagram Booklet MUST
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and sent for marking.**

Diagram Booklet

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

Question 1

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

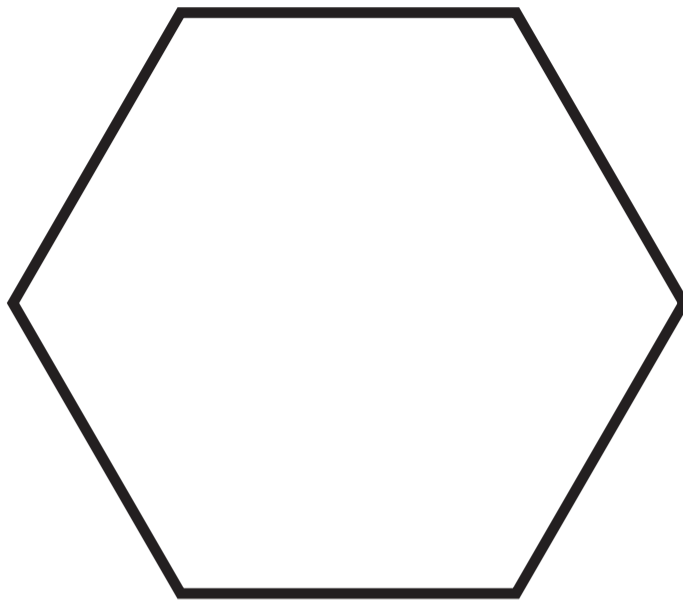
$$\boxed{\underline{\hspace{2cm}} \text{ p}} + \boxed{\text{£}3.58} = \boxed{362 \text{ p}}$$

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

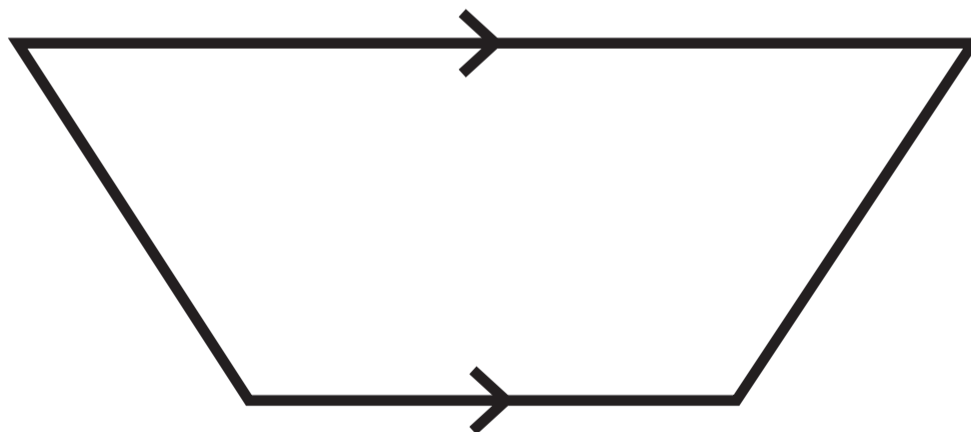
$$\boxed{13} \times \boxed{\underline{\hspace{2cm}} \text{ p}} = \boxed{\text{£}15.73}$$

Question 3 (a)

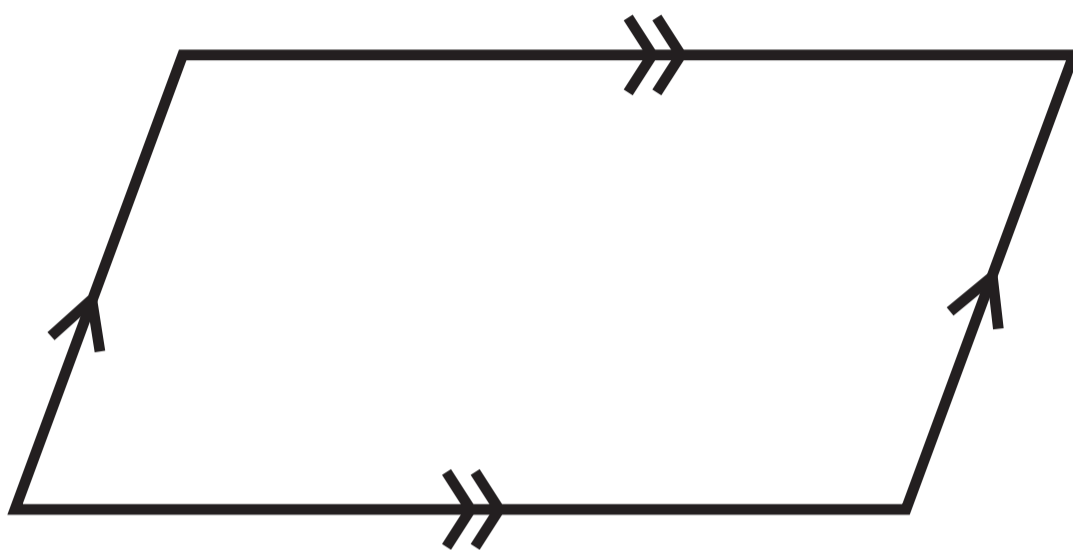
Shape (i)



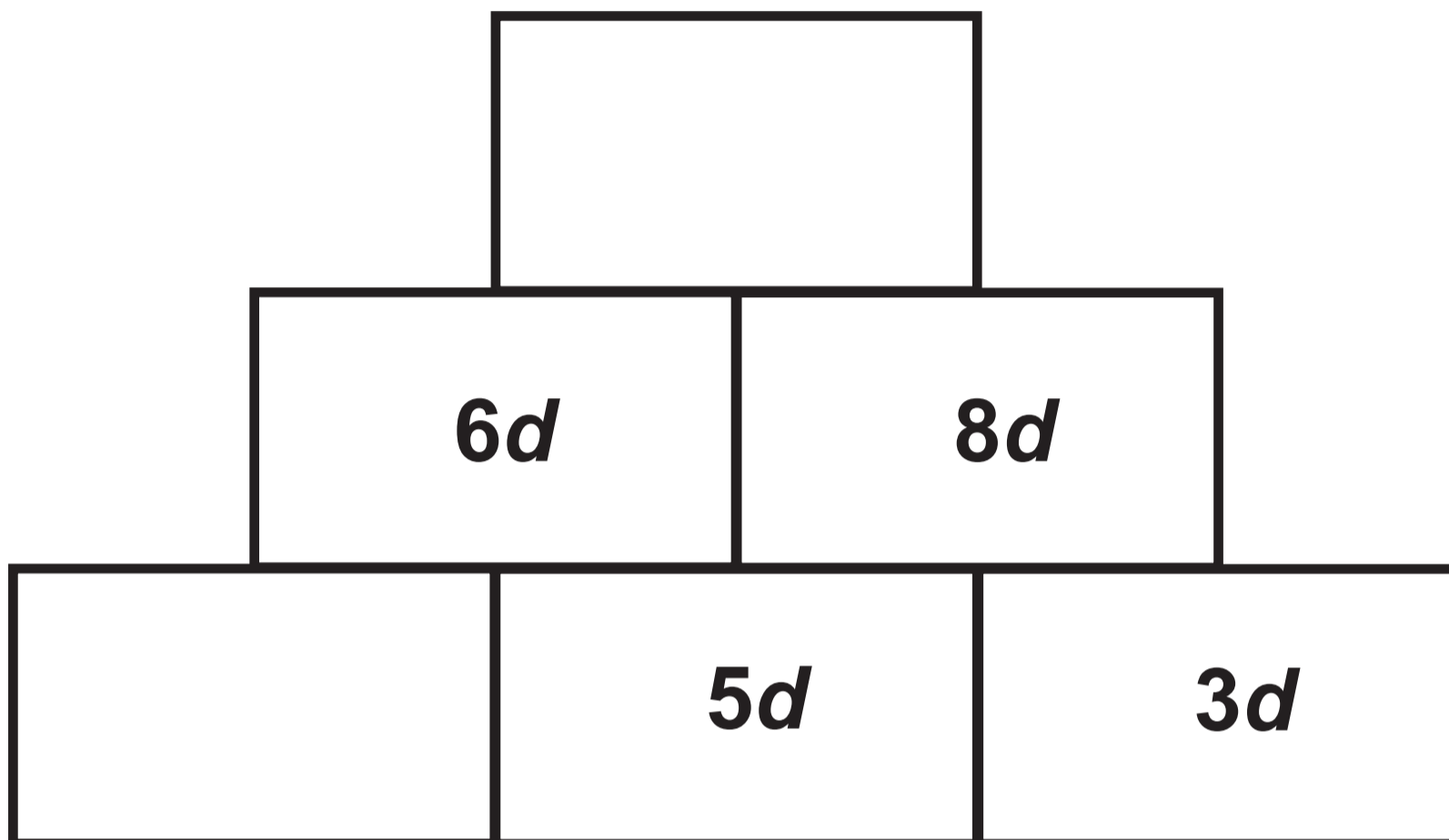
Shape (ii)



Question 3 (c)



Question 6

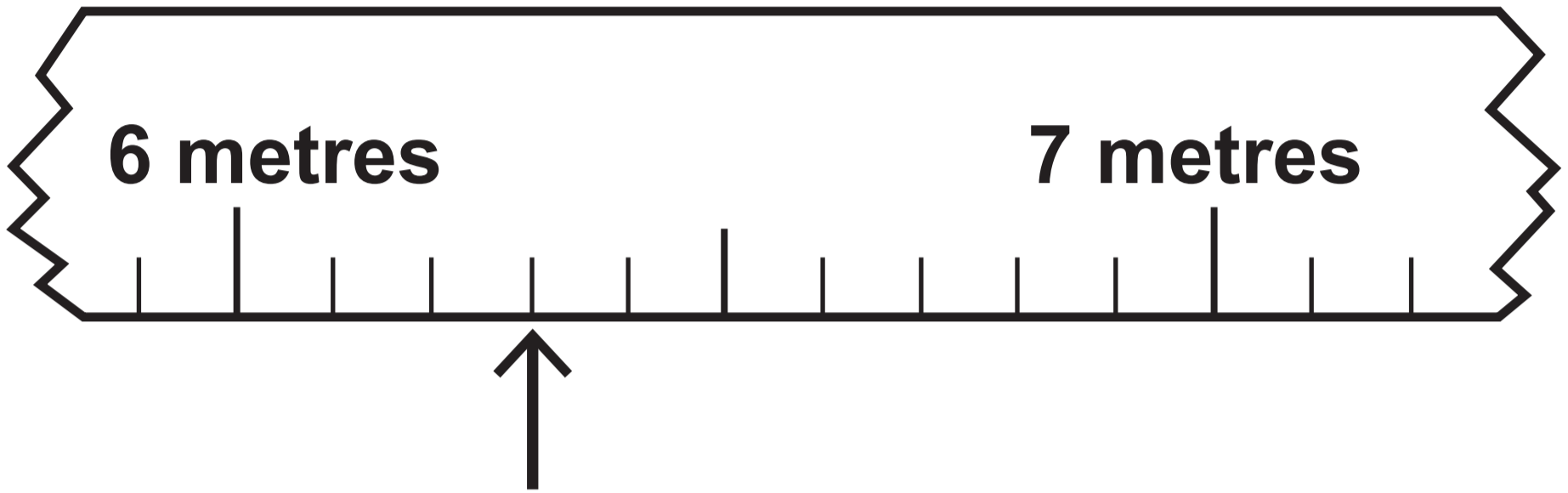


Question 11

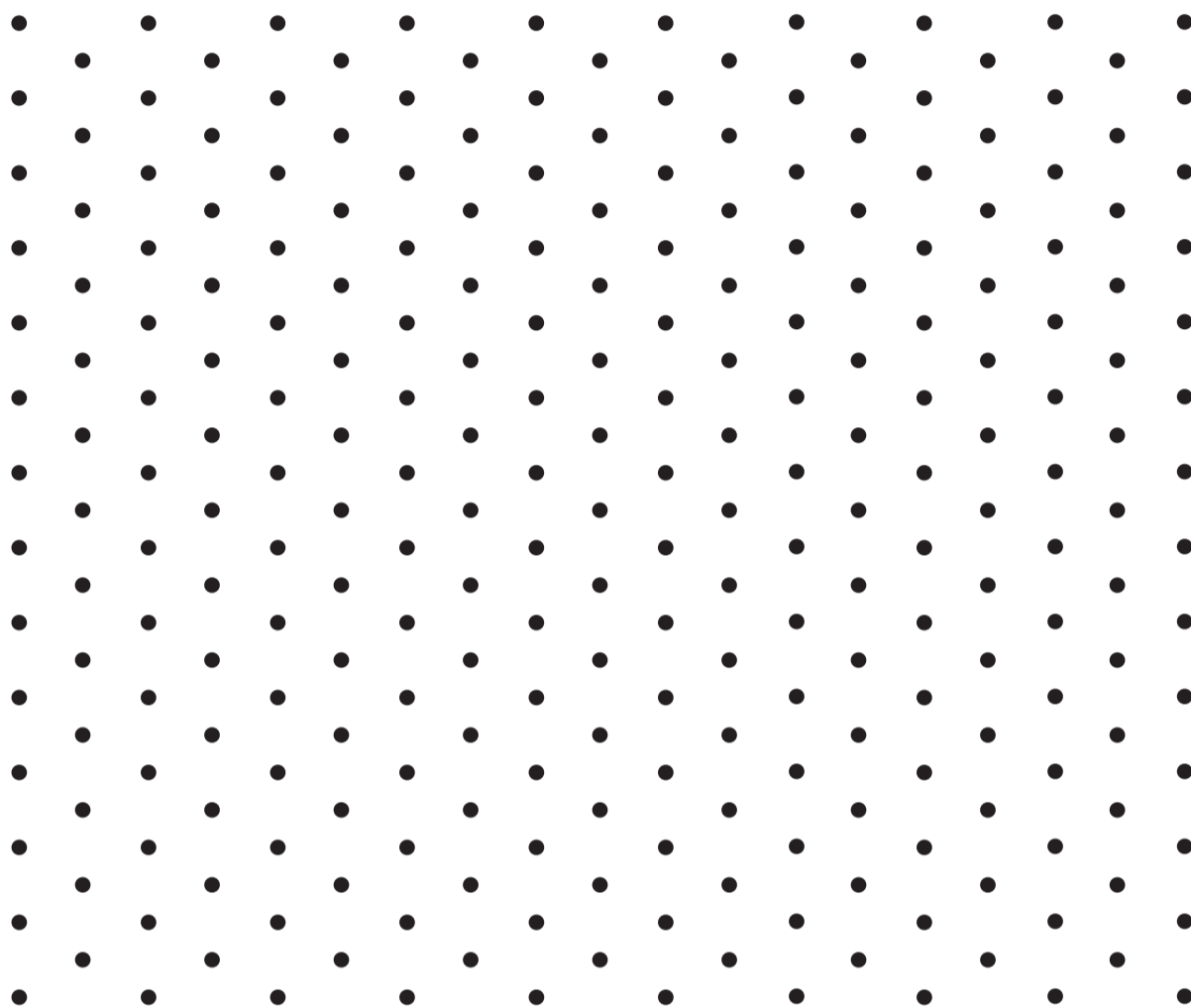
Scale: 1 cm REPRESENTS 2 metres



Question 12 (b)



Question 13 (a)



Question 18

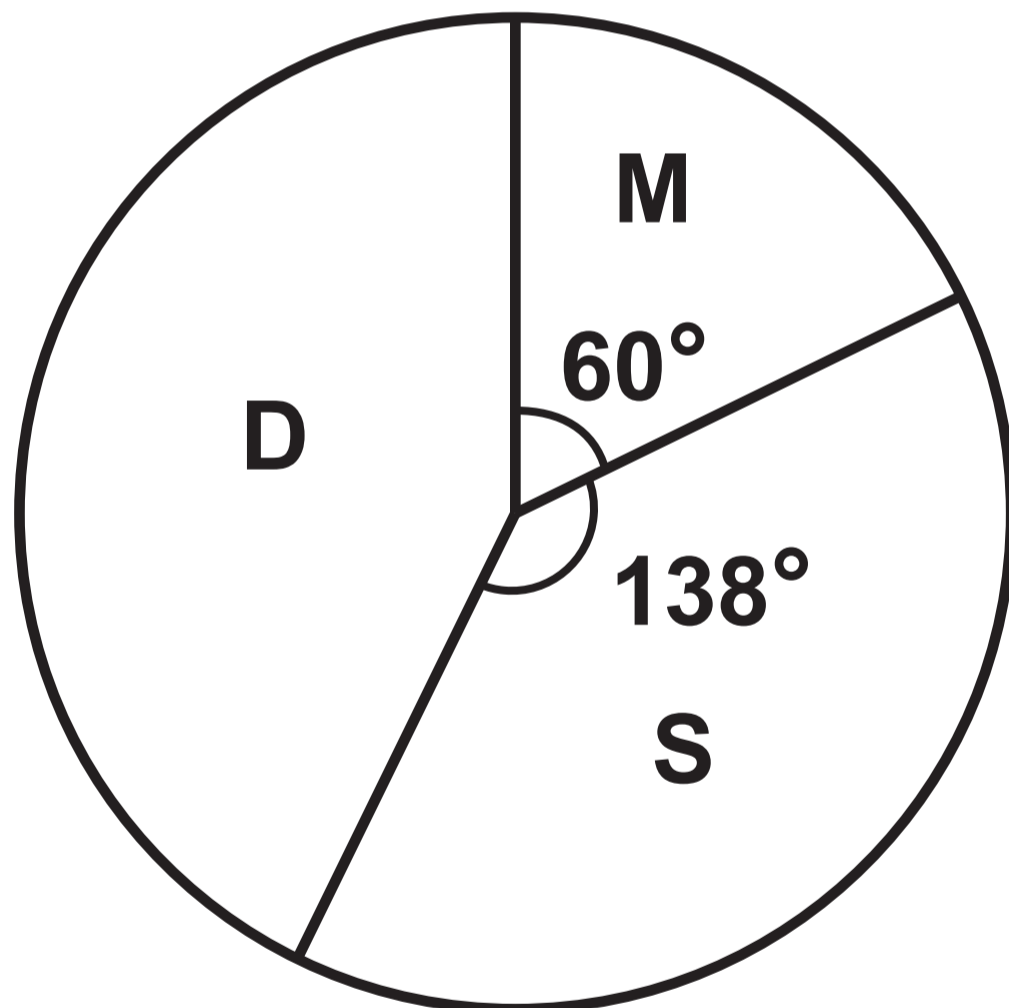
Diagram NOT drawn to scale

Key:

M = Management

S = Sales

D = Distribution



**GCSE
MATHEMATICS
and
NUMERACY**



**FORMULA LIST
FOUNDATION TIER
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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 $= \frac{1}{2} (a + b) h$

