Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

3300U20-1

S24-3300U20-1

WEDNESDAY, 12 JUNE 2024 – MORNING

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this examination.

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

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.

Take π as 3·14 or use the π button on your calculator.

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.

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**	

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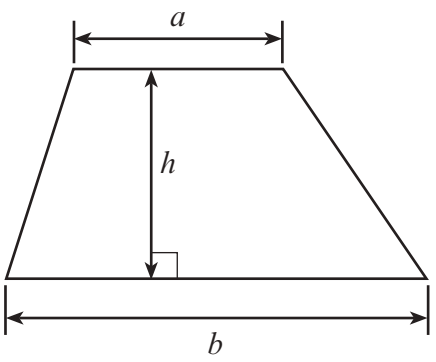
Formula List – Foundation Tier

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



Examiner only

1. Fill in the boxes below to make each calculation correct. [4]

£1.43	+	35p	=	£ .....
..... p	+	£3.58	=	362p
9	×	64p	=	£ .....
13	×	..... p	=	£15.73

Space for working:

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2. (a) There is one square number between 180 and 200.
What is this square number? [1]

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(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]

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(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. [2 + 1 W]

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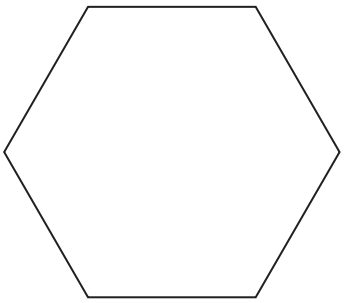
3. (a) Write down the special name of each shape below.

(i)



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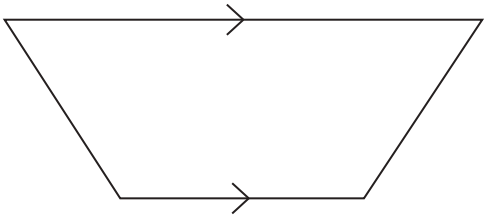
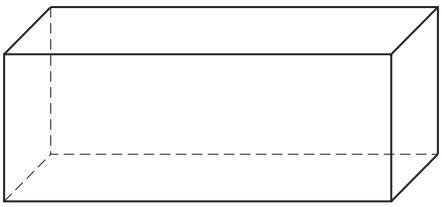
(ii)



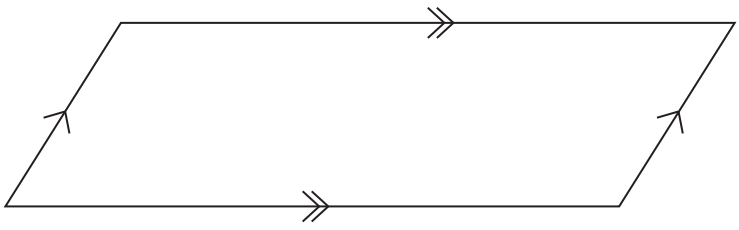
..... [1]

(b) Write down the special name of the 3D shape below.



..... [1]

(c) A parallelogram is shown below.



(i) What is the order of rotational symmetry of the parallelogram?
Circle the correct answer. [1]

0 1 2 3 4

(ii) How many lines of symmetry does the parallelogram have?
Circle the correct answer. [1]

0 1 2 3 4

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4. (a) Circle **all** the fractions that are equal to $\frac{5}{6}$. [2]

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

(b) Calculate $\frac{\sqrt{0 \cdot 64}}{4^2}$. [1]

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(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. [2]

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Space for working:

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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? [2]

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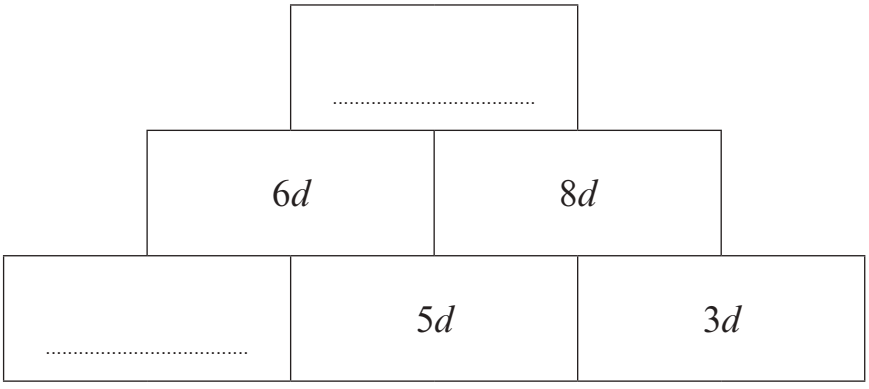
Second term = ...

Third term = ...

6. In the diagram shown below, 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. [2]



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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]

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(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]

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(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. [1]

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(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]

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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. [3 + 1 OC]

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9. Solve each of the following equations.

(a) $\frac{x}{5} = 20$ [1]

(b) $7m + 3 = 31$ [2]

10. Evaluate 55% of 42·8. [2]

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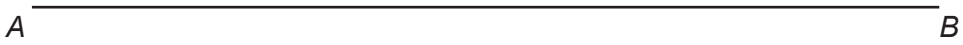
11. ABC is a large triangle, where AC = 16 m and BC = 13 m.

(a) Draw a scale drawing of this triangle using the following scale:

1 cm represents 2 m.

The side AB has already been drawn accurately. [2]



(b) What is the size of $A\hat{C}B$? [1]

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12. (a) How many minutes are there in 1 day and 5 hours? [2]

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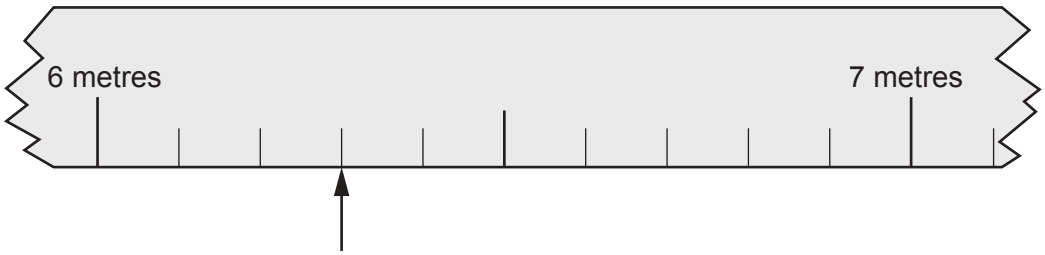
1 day and 5 hours = ... minutes

(b) The diagram below 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? [3]

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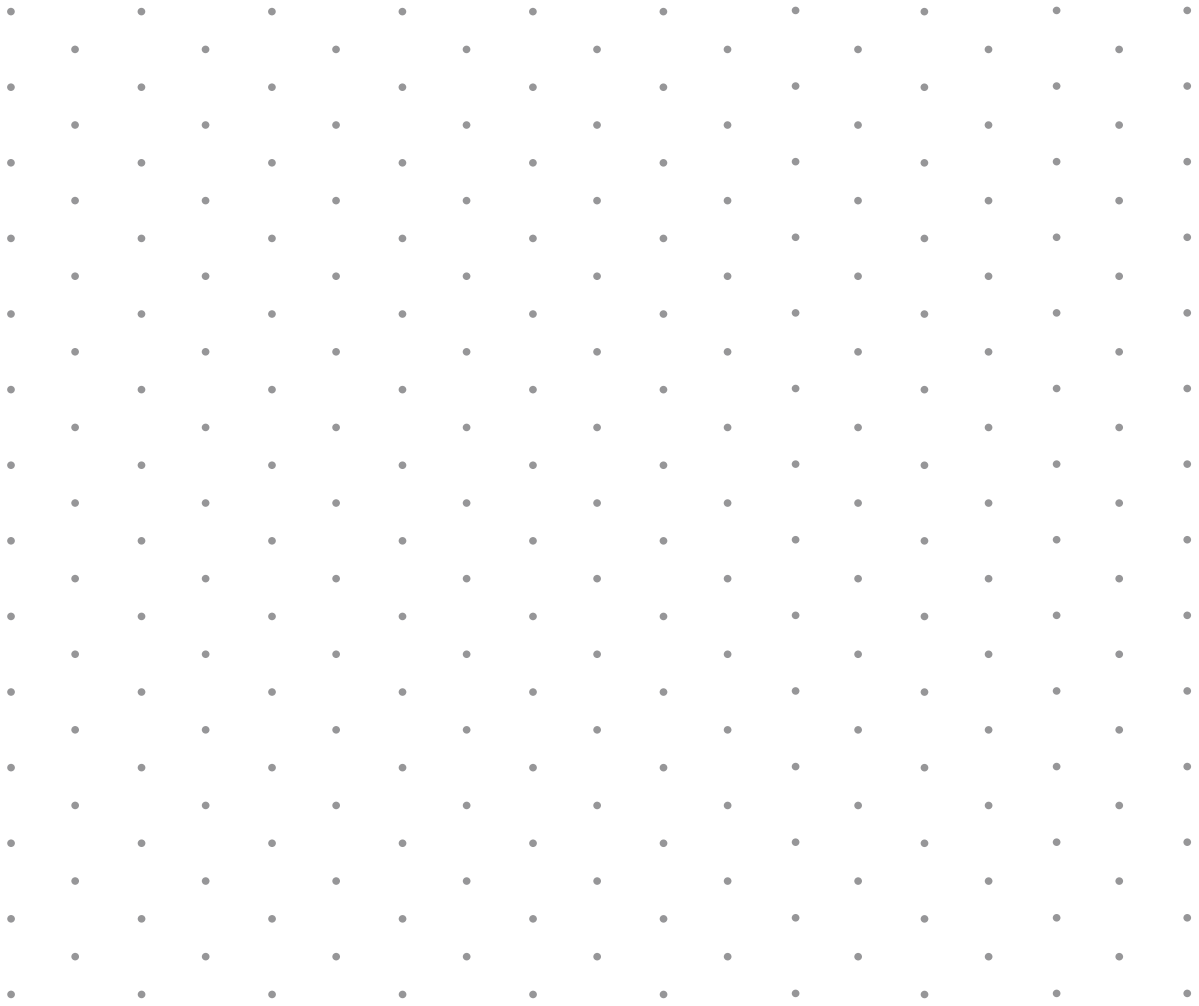
13. (a) Draw an isometric representation of a cuboid measuring 7 cm by 5 cm by 3 cm.
Use the grid below. [2]



(b) Calculate the volume of the cuboid.
You must give the units of your answer. [3]

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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. [2]

Colour	Yellow	Red	Blue	Pink
Probability	0·54	0·12	0·25	

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

What is the total number of balls in the play area? [2]

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

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Examiner only

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. [3]

Answer is ..... hours ..... minutes.

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. [3]

Area = ... cm^2

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18. The employees of a company belong to one of three departments: *Management (M)*, *Sales (S)* or *Distribution (D)*.

The diagram below is a sketch of a pie chart.
The diagram shows the proportion of employees working in each of these departments.

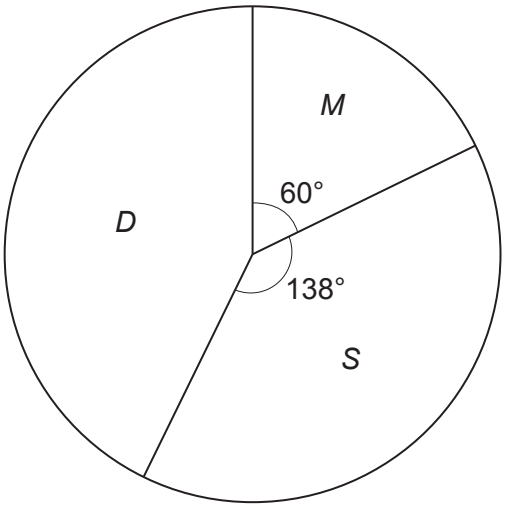

Diagram not drawn to scale

An employee is chosen at random.
Calculate the probability that this employee works in the *Distribution* department.
Give your answer as a decimal. [3]

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END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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