Surname	Centre Number	Candidate Number
Other Names		0

GCSE – NEW

3300U20-1

S17-3300U20-1

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

TUESDAY, 20 JUNE 2017 – AFTERNOON

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, a 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 continuation page at the back of the booklet, taking care to number the question(s) correctly.

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 **10**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**4**	
2.	**2**	
3.	**3**	
4.	**3**	
5.	**2**	
6.	**4**	
7.	**2**	
8.	**2**	
9.	**2**	
10.	**5**	
11.	**3**	
12.	**7**	
13.	**3**	
14.	**2**	
15.	**2**	
16.	**2**	
17.	**4**	
18.	**5**	
19.	**4**	
20.	**4**	
Total	**65**	

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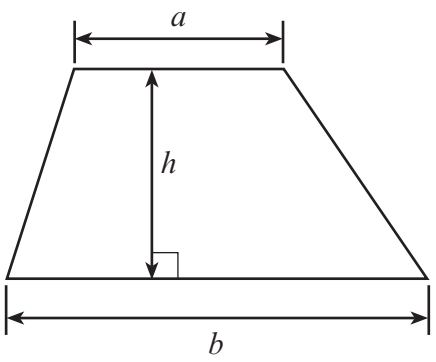
Formula List - Foundation Tier

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



Examiner only

1. Fill in the missing numbers in the calculations below. [4]

245	+	.....	=	1023
.....	–	263	=	642
46	×	.....	=	1610
.....	÷	15	=	43

2. Use either the symbol < or > to make each statement true. [2]

3	.....	12
4	.....	–3
0·25	.....	0·5
–20	.....	–15

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3. *(a)* (i) In the space below, draw a circle of radius 5 cm.

Use the point × as the centre of your circle. [1]

×

(ii) What is the length of the diameter of the circle you have drawn? [1]

.....

(b) What is the special name given to a triangle with three equal sides?
Circle the correct answer. [1]

Isosceles triangle Tetrahedron Scalene triangle

Right-angled triangle Equilateral triangle

Examiner only

4. Matthew writes down three **different** numbers.

- One number is a square number.
- The other two numbers are factors of 20.
- The sum of the three numbers is 24.

What three numbers did Matthew write down? [3]

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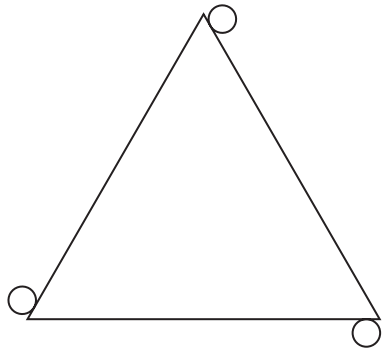
Matthew's three numbers are ..... , ... and .....

5. *(a)* What is the order of rotational symmetry of the shape below? [1]



.....

(b) Name a 4-sided shape with rotational symmetry of order 4. [1]

.....

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6. *(a)* Find the value of $\frac{235 \times 20^2}{17}$.

Write your answer correct to the nearest 10. [2]

.....

.....

(b) Find the value of $\sqrt{56 - 37} + 28$.

Write your answer correct to 2 decimal places. [2]

.....

.....

7. Find the value of $8x + 3y$, when $x = 3$ and $y = -2$. [2]

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8. Eira believes that 4 minutes 48 seconds is less than half of 9 minutes 18 seconds.
Is Eira correct?
You must show all your working. [2]

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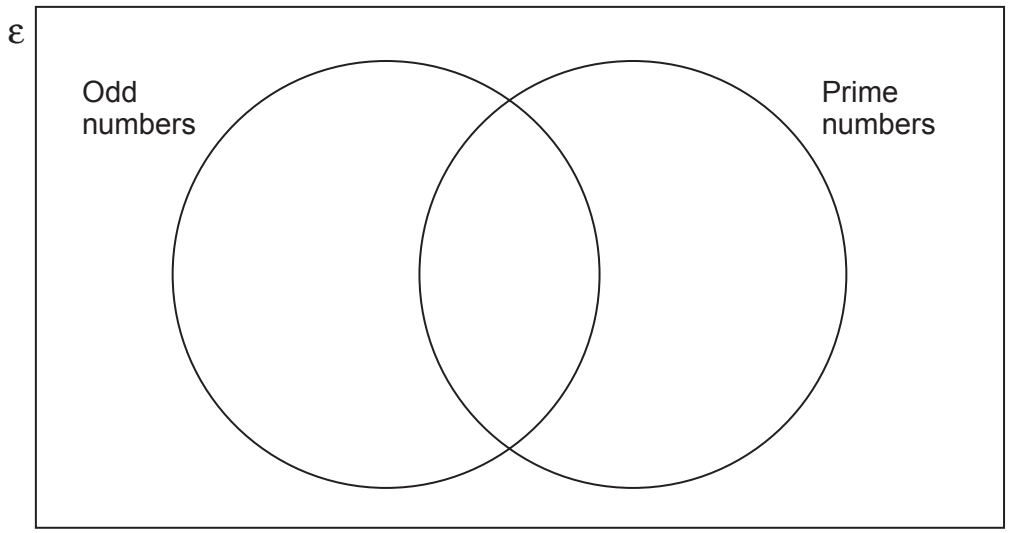
9. The Venn diagram below is used for showing
- odd numbers and
- prime numbers.

Place the numbers **1**, **2**, **3**, **4 and 5** in the Venn diagram. [2]



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10. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

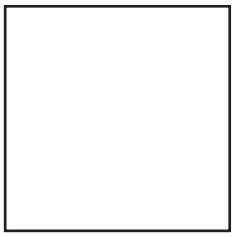

Diagram not drawn to scale

The perimeter of a square is 56 cm.
Calculate the area of the square.
You must show all your working. [3 + 2 OCW]

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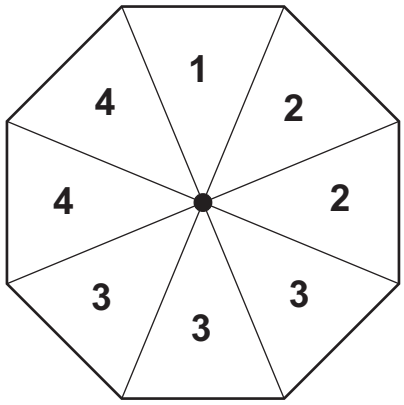
11. Seren has a fair 8-sided spinner.
The sections of the spinner are numbered 1, 2, 2, 3, 3, 3, 4, 4.



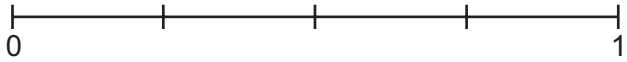
(a) Which number is the spinner most likely to land on? [1]

.....

(b) Circle one term from the list below that describes the probability of the spinner landing on a 2. [1]

impossible **unlikely** **even chance** **likely** **certain**

(c) On the probability scale below, mark with an arrow the probability of the spinner landing on a 3. [1]



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12. *(a)* Calculate 39% of £576. [2]

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(b) Calculate $\frac{3}{7}$ of 100.

Give your answer correct to the nearest whole number. [2]

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(c) How many quarters are there in 10? [1]

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.....

(d) What **fraction** is equal to 50% of $\frac{1}{6}$? [1]

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.....

(e) Circle the fraction that is a recurring decimal. [1]

$\frac{21}{35}$ $\frac{10}{12}$ $\frac{17}{68}$ $\frac{15}{24}$ $\frac{51}{170}$

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Examiner only

13. Circle either TRUE or FALSE for each of the following statements. [3]

A triangle with one angle equal to 70° could be an equilateral triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be an isosceles triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be a right-angled triangle.	TRUE	FALSE
An isosceles triangle could have one of its angles equal to 105°.	TRUE	FALSE
A right-angled triangle could have one of its angles equal to 105°.	TRUE	FALSE

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14. Calculate the answer when,

'the largest prime number that is a factor of 28'

is multiplied by

'the smallest prime number that is factor of 15'. [2]

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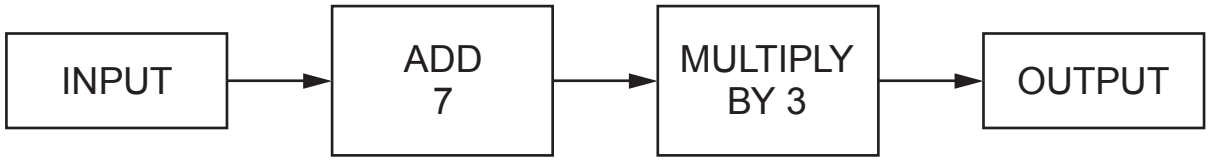
15. The diagram below shows a number machine.



Using the number machine, calculate:

(a) the OUTPUT when the INPUT is −2, [1]

.....

.....

(b) the INPUT when the OUTPUT is 36, [1]

.....

.....

16. Write down three integers, all less than 25, whose
- range is 8, and
- mean is 13. [2]

.....

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.....

The three integers are ..... , ... and .....

Examiner only

17. *(a)* Write down the first three terms of the sequence whose nth term is given by $2n - 5$. [2]

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The first three terms are ..... , ... and .....

(b) Write down an expression for the nth term of the following sequence. [2]

7, 11, 15, 19, ...

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18. A dice is thrown 50 times.
The number shown on the dice is recorded after each throw.
The table below shows the results recorded.

Number shown on dice	1	2	3	4	5	6
Frequency	9	7	8	7	6	13

(a) The relative frequency of throwing a 1 was calculated as $\frac{9}{50} = 0{\cdot}18$.

What was the relative frequency of throwing a 6?
Give your answer as a decimal. [1]

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(b) The number 4 was thrown 7 times in the first 50 throws.
Using **this fact**, calculate how many times you would expect a 4 to be thrown when this dice is thrown 3000 times. [2]

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(c) How many times would you expect a 4 to be thrown when a **fair** dice is thrown 3000 times? [2]

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Examiner only

19. *ABCDE* is a regular pentagon with centre *O*.

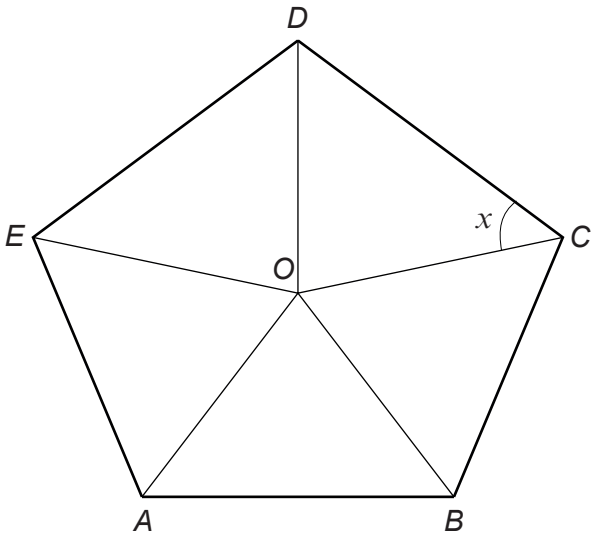

Diagram not drawn to scale

Calculate the size of angle x.
You must show all your working. [4]

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20. *ABCF* is a rectangle.
CDEF is a trapezium.
BD is a straight line.

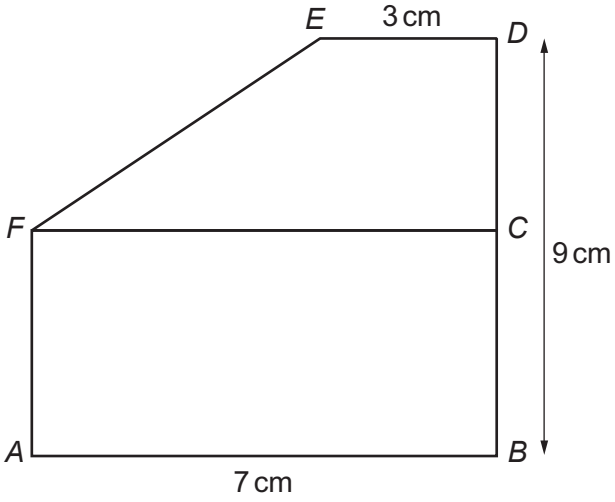

Diagram not drawn to scale

AB = 7 cm, *BD* = 9 cm and *DE* = 3 cm.

The perimeter of rectangle *ABCF* is 24 cm.

Calculate the **area** of the trapezium *CDEF*.
You must show all your working. [4]

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