

Surname	Centre Number	Candidate Number
First name(s)		0



**GCSE**

3300U20-1



**WEDNESDAY, 13 NOVEMBER 2019 – 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  $\pi$  as 3.14 or use the  $\pi$  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 4, 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.	2	
4.	5	
5.	4	
6.	2	
7.	4	
8.	2	
9.	2	
10.	6	
11.	4	
12.	3	
13.	3	
14.	3	
15.	5	
16.	5	
17.	6	
18.	3	
<b>Total</b>	<b>65</b>	

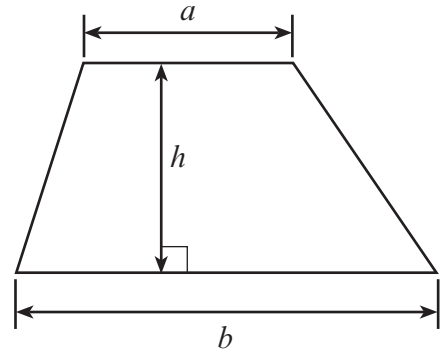
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## Formula List - Foundation Tier

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



1. Complete the calculations below.

[4]

$$975 \quad \times \quad 74 \quad = \quad \dots\dots\dots$$

$$834 \quad \times \quad \dots\dots\dots = \quad 43\,368$$

$$\dots\dots\dots \div 43 = 1376$$

$$5056 \div \dots\dots\dots = 32$$

*Space for working:*

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2. (a) Write down the first 5 multiples of 44.

[1]

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(b) A number has **exactly** four factors.  
Its factors are 1, 3, 11 and the number itself.  
What is the number?

[1]

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3. Use one of the symbols  $<$ ,  $>$  or  $=$  to make each of the following statements correct. [2]

$6 + 48$	.....	8
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$6 - 48$	.....	8
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$6 \times 48$	.....	8
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$6 \div 48$	.....	8
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*Space for working:*

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

An equilateral triangle and a square are shown below.



*Diagram not drawn to scale*

The perimeter of the equilateral triangle is **equal to** the perimeter of the square.

Calculate the length of a side of the square.  
You must show all your working.

[3 + 2 OCW]

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5. Complete the table below so that each row will show equivalent fractions, decimals and percentages.  
The first row has been completed for you. [4]

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{10}$	.....	.....%
$\frac{.....}{25}$	.....	8%

6. (a) Calculate  $3 + 5 \cdot 4^2$ . [1]

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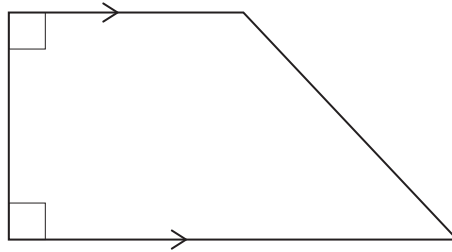
- (b) Calculate  $\frac{\sqrt{2.56}}{4}$ . [1]

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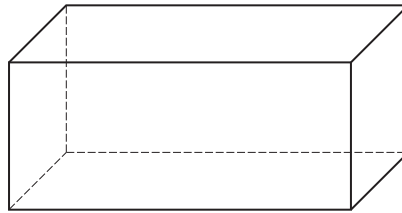
7. Circle the correct answer for each question below.

(a) What is the special name of the shape below? [1]



pentagon      rhombus      trapezium      rectangle      kite

(b) What is the special name of the 3D shape below? [1]



cube      cuboid      cylinder      cone      sphere

(c) What type of angle is an angle of  $181^\circ$ ? [1]

an acute angle      an obtuse angle      a straight line      a right angle      a reflex angle

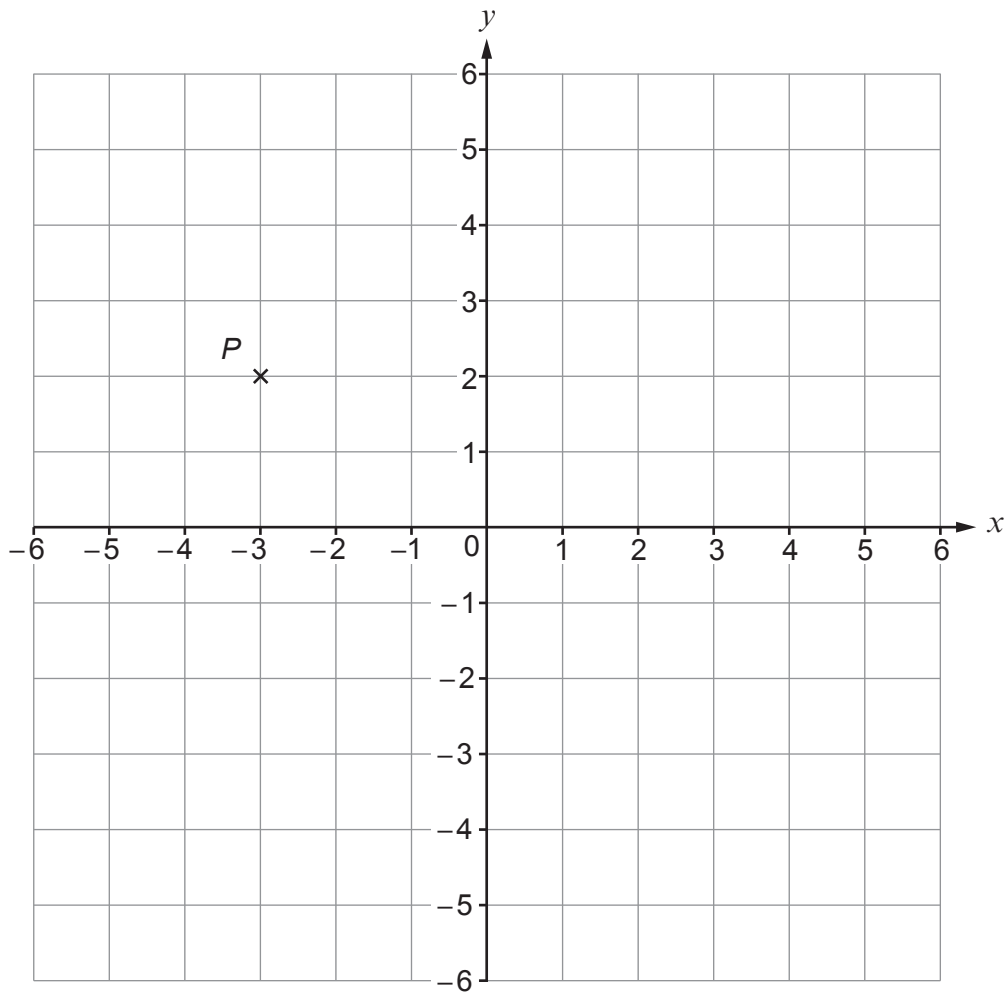
(d) Which shape has rotational symmetry of order 2? [1]

parallelogram      square      equilateral triangle      isosceles triangle      scalene triangle



8. (a) On the grid below plot the point  $R(5, -2)$ .

[1]



- (b) Write down the coordinates of point  $P$ , shown on the grid.

[1]

( ..... , ..... )

9. Use the formula  $T = 7A - B$  to find the value of  $T$  when  $A = 43$  and  $B = 26$ .

[2]

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10. (a) Fatima writes down three **square** numbers.  
The total of the square numbers is 30.

Which square numbers did Fatima write down?

[3]

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The numbers which Fatima wrote are ..... , ..... and .....

(b) Cadfan writes down four **positive odd** numbers.

The mode of his numbers is 7.  
The median of his numbers is 6.

Which odd numbers could Cadfan have written down?

[3]

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The numbers Cadfan could have written are ..... , ..... , ..... and .....

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11. (a) Calculate  $12\frac{1}{2}\%$  of 1176.

[2]

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(b) Evaluate  $\frac{4.3 \times 8.6}{9.3 - 1.4}$ .

Give your answer correct to 1 decimal place.

[2]

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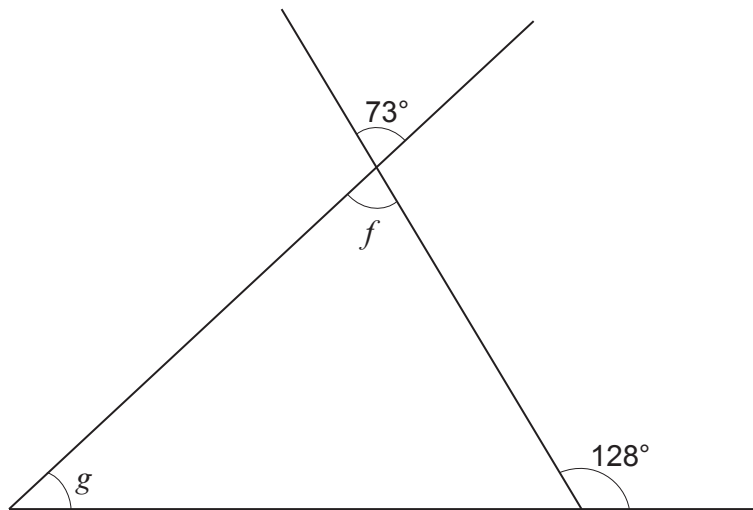
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12.



*Diagram not drawn to scale*

Calculate the size of each of the angles  $f$  and  $g$ .

[3]

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$$f = \text{.....}^\circ \quad g = \text{.....}^\circ$$



13. Fill in the boxes so that the following addition is correct.

[3]

$$\begin{array}{r} \boxed{1} \quad \boxed{\phantom{0}} \quad \boxed{9} \\ \boxed{7} \quad \boxed{8} \quad \boxed{\phantom{0}} \quad + \\ \hline \boxed{\phantom{0}} \quad \boxed{4} \quad \boxed{1} \\ \hline \end{array}$$

*Space for working:*

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14. (a) A person is chosen at random.  
Which is the best estimate for the probability that this person was born in the month of March?  
Circle the correct answer. [1]

$\frac{1}{30}$

$\frac{1}{31}$

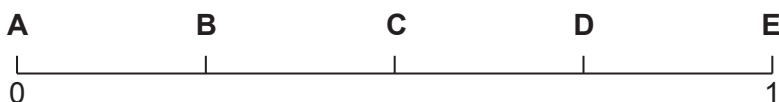
$\frac{12}{365}$

$\frac{1}{12}$

$\frac{12}{31}$

- (b) A box contains four coloured cards.  
One card is blue, one is red, one is green and one is white.  
A card is drawn from the box at random.

Which letter, **A**, **B**, **C**, **D** or **E**, represents the probability that the card drawn is **not** blue?  
Circle the correct letter on the probability scale below. [1]



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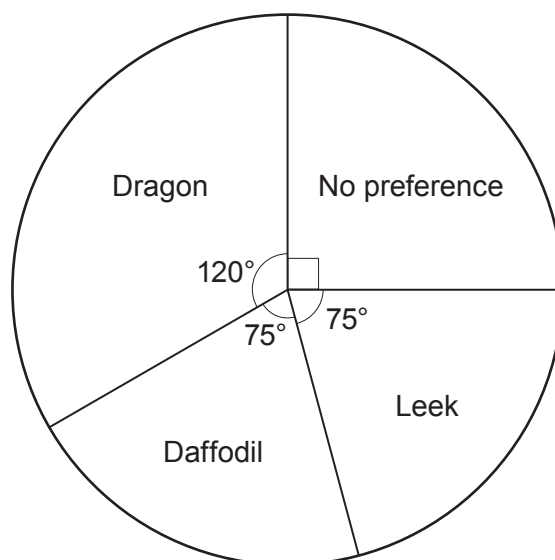


(c) The pupils at a school were asked the following question.

'What design would you like to have on the school's badge?'

Dragon  Daffodil  Leek  No preference

The results of the replies received are shown in the pie chart below.



A pupil who answered the question is chosen at random.  
What is the probability that this pupil wanted the design to be a dragon?  
Circle the correct answer.

[1]

$\frac{1}{3}$

$\frac{1}{4}$

$\frac{1}{360}$

4%

$\frac{1}{120}$

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16. A coach company runs trips to Llandudno and Aberystwyth.  
The information kept by the company about the passengers on these trips includes:
- the destination of the trip,
  - their ages.

The table below shows the number of passengers who went to Llandudno or Aberystwyth last Tuesday.

	Llandudno	Aberystwyth
Passengers 60 years old and over	323	217
Passengers under 60 years old	122	58

- (a) What was the ratio of passengers 60 years old and over to passengers under 60 years old?  
Give your answer in its simplest form. [3]

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Passengers 60 years old and over : passengers under 60 years old  
= ..... : .....

- (b) One of these passengers was selected at random.  
What is the probability that this passenger went on the trip to Llandudno? [2]

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17. (a) Solve the following equation.

[3]

$$4(3x + 2) = 12$$

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(b) Write down an expression for the **total** cost of 3 bananas at  $x$  pence each, and 5 apples at  $2x$  pence each.

Simplify your answer.

[3]

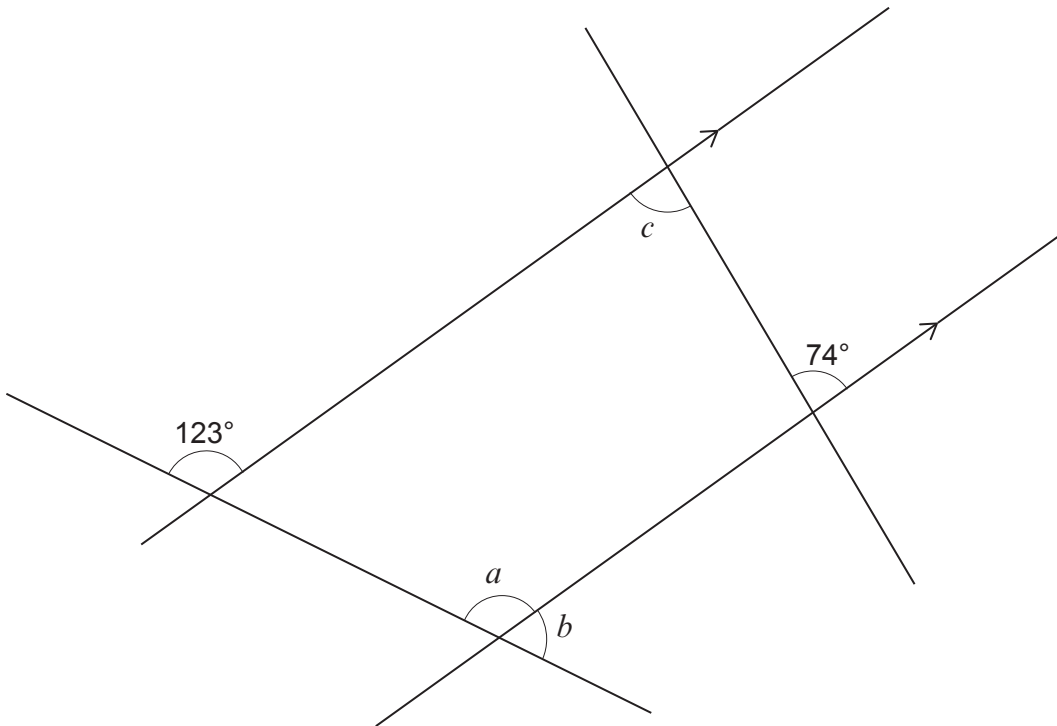
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18.



*Diagram not drawn to scale*

Find the size of each of the angles  $a$ ,  $b$  and  $c$ .

[3]

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$a = \dots\dots\dots^\circ$        $b = \dots\dots\dots^\circ$        $c = \dots\dots\dots^\circ$

**END OF PAPER**



