GCSE

3300U20-1

wjec cbac

A19-3300U20-1

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 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 **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	
Total	65	

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Formula List - Foundation Tier

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

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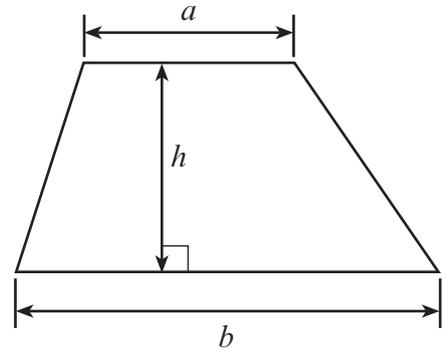
1. Complete the calculations below. [4]

975 × 74 = ...

834 × .... = 43 368

.... ÷ 43 = 1376

5056 ÷ .... = 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

6 − 48	....	8

6 × 48	....	8

6 ÷ 48	....	8

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.

14 cm
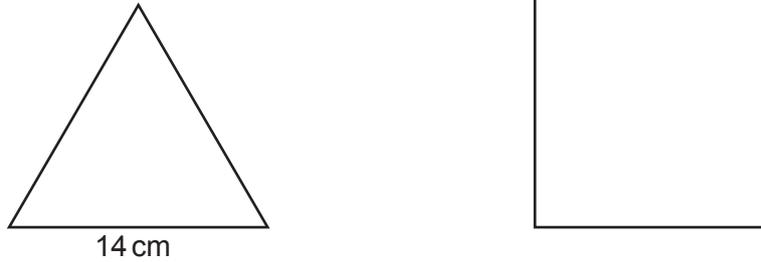
Diagram not drawn to scale

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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Turn over.

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 $\dfrac{\sqrt{2 \cdot 56}}{4}$. [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]
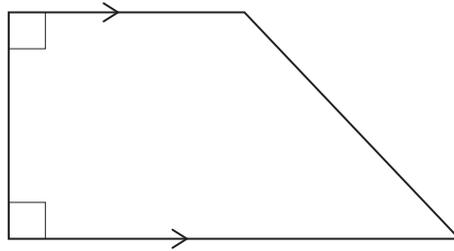
pentagon   rhombus   trapezium   rectangle   kite

(b) What is the special name of the 3D shape below? [1]
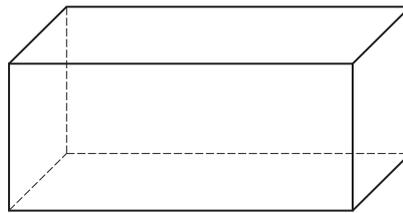
cube   cuboid   cylinder   cone   sphere

(c) What type of angle is an angle of 181°? [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

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8. *(a)* On the grid below plot the point *R* (5, –2). [1]
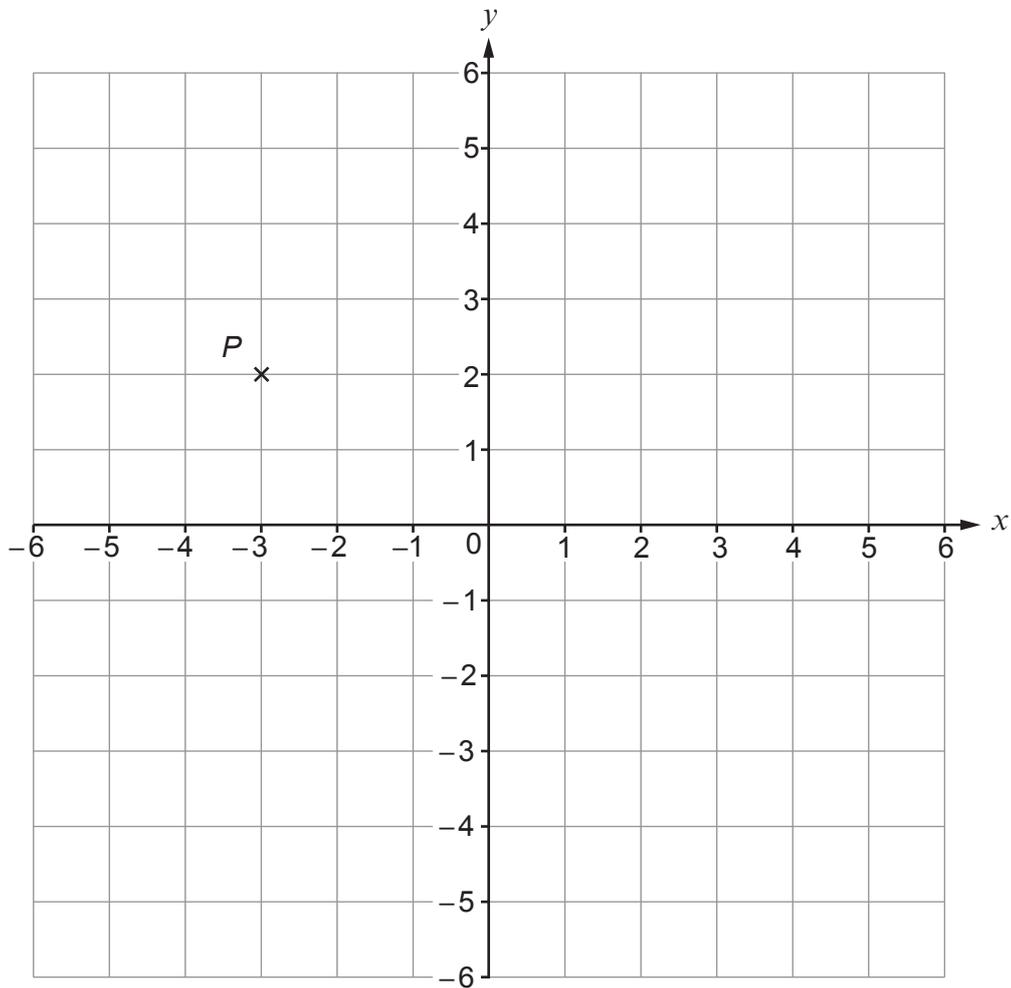
(b) Write down the coordinates of point *P*, shown on the grid. [1]

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

9. Use the formula *T* = 7*A* – *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 $\dfrac{4\cdot3 \times 8\cdot6}{9\cdot3 - 1\cdot4}$.

Give your answer correct to 1 decimal place. [2]

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12.

73°

f

g

128°
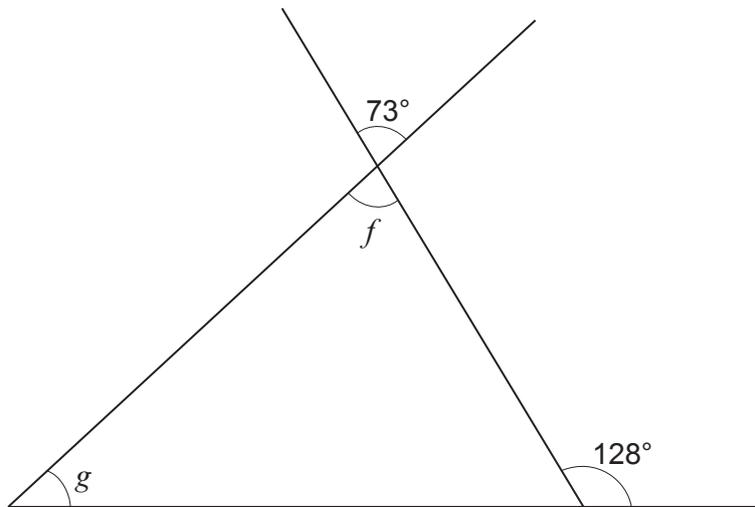
Diagram not drawn to scale

Calculate the size of each of the angles f and g. [3]

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$f =$ .... ° $g =$ .... °

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13. Fill in the boxes so that the following addition is correct. [3]

$$
\begin{array}{ccc}
1 & \boxed{} & 9 \\
7 & 8 & \boxed{} \quad + \\
\hline
\boxed{} & 4 & 1 \\
\hline
\end{array}
$$

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]

$\dfrac{1}{30}$ $\qquad$ $\dfrac{1}{31}$ $\qquad$ $\dfrac{12}{365}$ $\qquad$ $\dfrac{1}{12}$ $\qquad$ $\dfrac{12}{31}$

(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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   A        B        C        D        E
   |_____|_____|_____|_____|
   0                                   1
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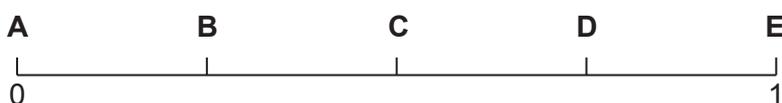
(c) The pupils at a school were asked the following question.

'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.
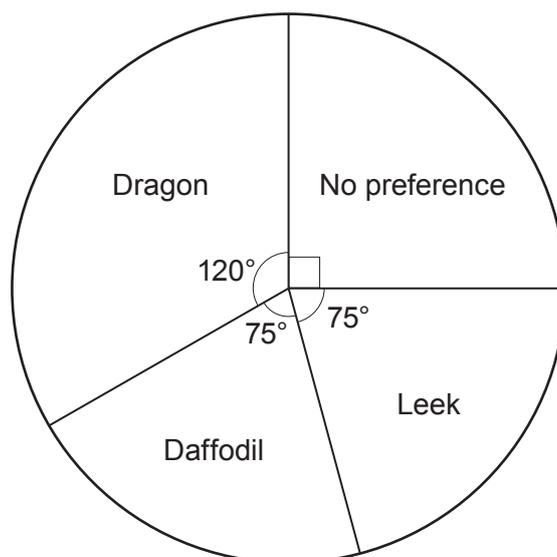
A pupil who answered the question is chosen at random.
What is the probability that this pupil wanted the design to be a dragon?
Circle the correct answer. [1]

$\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{360}$ 4% $\frac{1}{120}$

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15. A task takes 6 hours 15 minutes to complete.

$\frac{2}{5}$ of this time is spent on planning.

How long was spent on the **rest of the task**?
Give your answer in hours and minutes.

You must show all your working. [5]

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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.
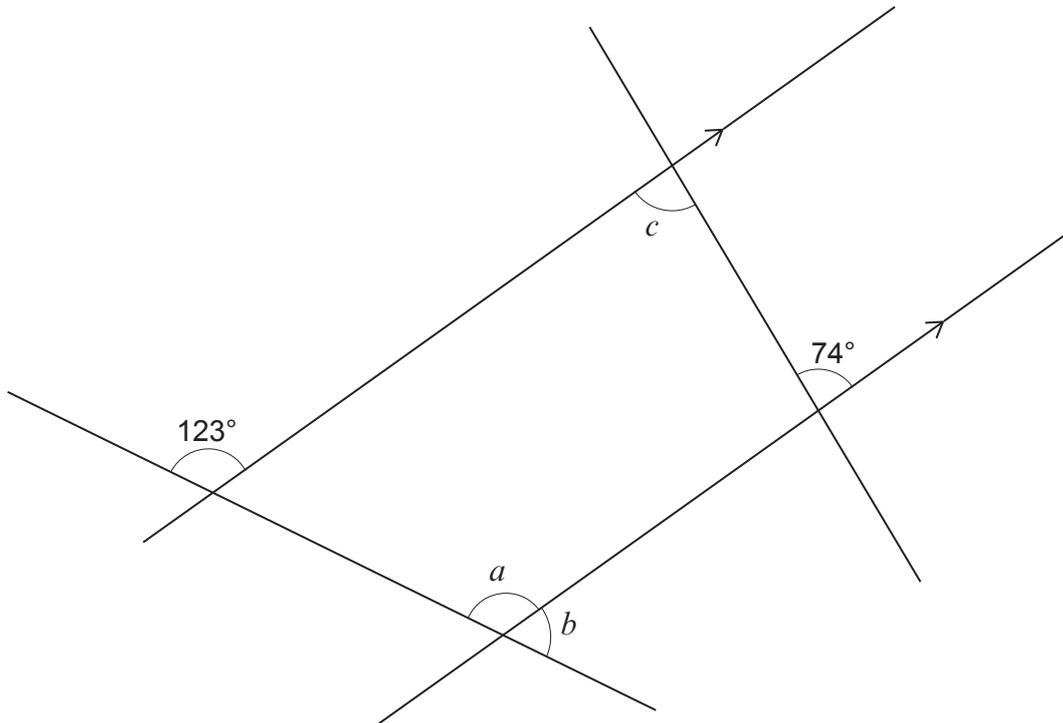
Diagram not drawn to scale

Find the size of each of the angles a, b and c. [3]

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a = ... ° b = ... ° c = ... °

END OF PAPER

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

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