Surname		Centre Number	Candidate Number
First name(s)			0

GCSE

wjec cbac

3300U20-1

A21-3300U20-1

WEDNESDAY, 10 NOVEMBER 2021 – MORNING

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

1 hour 25 minutes

ADDITIONAL MATERIALS

A calculator will be required for this examination.

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 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 **9**, the assessment will take into account the quality of your organisation and communication.

In question **11**(a), 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.	3	
3.	2	
4.	2	
5.	3	
6.	3	
7.	4	
8.	4	
9.	4	
10.	2	
11.	5	
12.	4	
13.	2	
14.	4	
15.	4	
16.	5	
17.	5	
Total	60	

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Formula List – Foundation Tier

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

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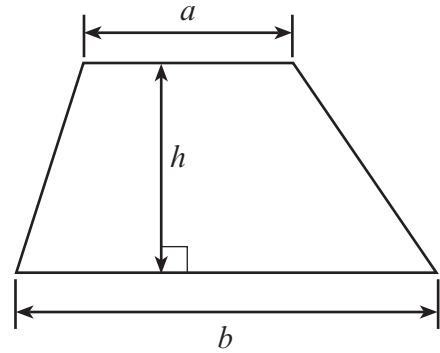
1. Complete each calculation below.

(a) 462 + ... = 5631   [1]

....

....

(b) 7364 – .... = 862   [1]

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(c) 532 × .... = 98 952   [1]

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(d) 21 690 ÷ .... = 482   [1]

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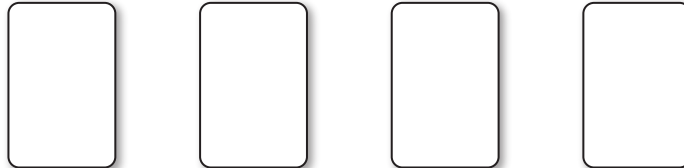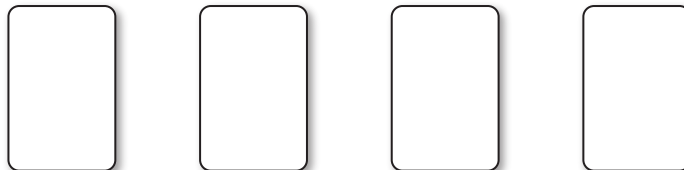
2. A card is chosen at random from a set of four cards.

In each question, **write numbers on the four cards** to make each of the following statements true.
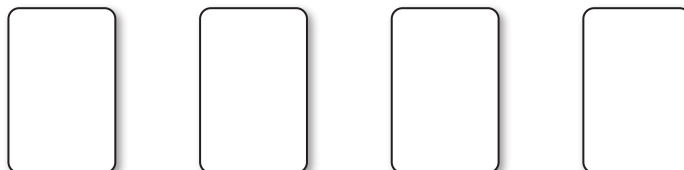
(a)   It is certain that the chosen card will be a 5.   [1]

(b)   It is an even chance that the chosen card will be a 3.   [1]

(c)   It is unlikely that the chosen card will be a 2.   [1]

3.   (a)   Write forty thousand and sixty-five in figures.   [1]

....

(b)   Round 5378 to the nearest hundred.   [1]

....

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4. *(a)* A shape has:
- four sides,
- all sides the same length,
- two obtuse angles and two acute angles.

Circle the special name for this shape. [1]

rectangle   square   rhombus   kite   trapezium

(b) A shape has:
- three sides,
- three angles of 60°.

Circle the special name for this shape. [1]

scalene   equilateral   isosceles   right-angled   obtuse-angled
triangle   triangle   triangle   triangle   triangle

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5. In the grid below:
  - each column must add to 250,
  - each row must add to 250.

Complete the grid. [3]

....	60	78	....
26	....	27	112
95	105	....	8
58	0	103	....

Space for working:

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6. *(a)* Write the next term in the sequence below. [1]

2, 26, 50, 74, ...

(b) Describe the rule for continuing the following sequence. [1]

77, 64, 51, 38, 25, ...

Rule:

....

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(c) A dog is x years old.
Another dog is 2 years younger.
Write down, in terms of x, the age of the younger dog. [1]

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7. Gwenan writes down four numbers:

64 89 83 26

(a) Calculate the mean of Gwenan's numbers. [3]

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(b) Every number in Gwenan's list is increased by 1.
What is the mean of her new list of numbers? [1]

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8. Find the value of each of the following.

   (a) 4·8 squared   [1]

....

....

   (b) The square root of 62·41   [1]

....

....

   (c) 4% of 325   [2]

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....

9. *In this question, you will be assessed on the quality of your organisation and communication.*

Oliver thinks of a number between 40 and 95.

Oliver's number is a multiple of 9.
It is an even number.

$\frac{1}{3}$ of Oliver's number is a multiple of 5.

What is Oliver's number?
You must show all your working.   [3 + 1 OC]

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10.

Find the coordinates of the midpoint of the line *AB*. [2]

Midpoint is (............................. , ...)

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11. *(a)* *In this part of the question, you will be assessed on the quality of your linguistic and mathematical accuracy in writing.*

Solve $7x - 3 = 11$. [2 + 1 W]

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(b) Find the value of $3f + 2g$ when $f = 5{\cdot}8$ and $g = -3{\cdot}7$. [2]

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12. A company produces 440 boxes of paper clips each day.
Each box contains between 320 and 330 paper clips.

Calculate the approximate total number of paper clips produced in 200 days.
Give your answer to the nearest ten million.
You must show all your working. [4]

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13. Thirty numbers are recorded in the grouped frequency table below.

Group	1 to 20	21 to 40	41 to 60	61 to 80	81 to 100
Frequency	3	8	7	6	6

It is decided that the same thirty numbers should be recorded in a table with larger group widths.

This new table is shown below, but only one frequency has been given.

Group	1 to 30	31 to 60	61 to 90
Frequency			12

(a) What is the smallest possible frequency of the 1 to 30 group? [1]

....

(b) What is the greatest possible frequency of the 31 to 60 group? [1]

....

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14. *(a)* A camera was switched on at

21:45 on 20th March, 2021.

It was left continuously filming until the battery ran out.

The battery lasted for exactly 2 days and 10 hours.

At what time and on which date did the battery run out? [2]

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Battery ran out at .... : .... on .... March 2021.

(b) Helen says,

15 miles is nearly 25 kilometres.
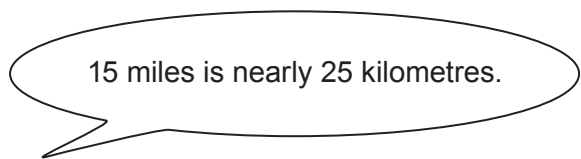
Is she correct?
You must show all your working. [2]

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15. *ABCD* and *PQRS* are both squares.
AB = 9 cm.
Shaded area = 32 cm^2.

Calculate the length of *PQ*. [4]
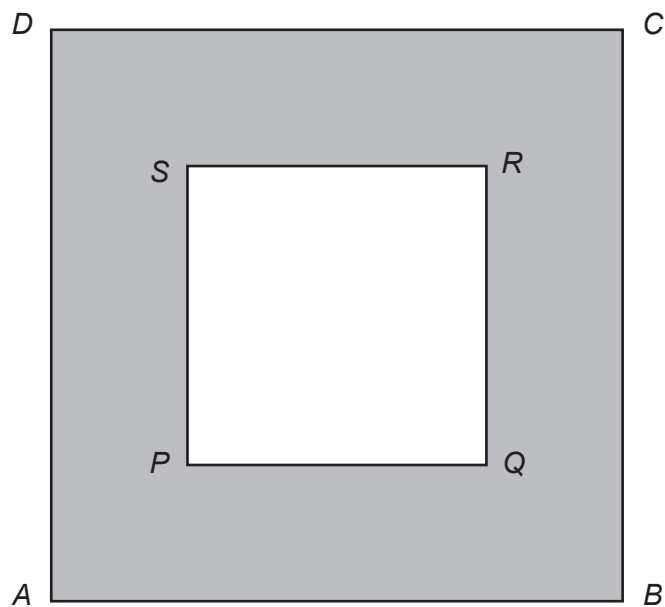
Diagram not drawn to scale

16. *(a)* Calculate $\dfrac{13\cdot8 \times 0\cdot7}{9\cdot5 - 2\cdot8}$.

Give your answer correct to 3 decimal places. [2]

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(b) Evaluate

$$(17\tfrac{1}{2} \text{ % of } 1600) - (\text{the square root of } 8000).$$

Give your answer correct to the nearest whole number. [3]

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17. Geraint is running a game in a school fair.
A large number of balls are placed in a box.
Each of the balls is one of three colours: bronze, silver or gold.

In the game, a ball is chosen at random from the box.
The table below shows the probability of choosing a bronze ball and the probability of choosing a silver ball.

Colour	Bronze	Silver	Gold
Probability	0·68	0·22	

In the game, each person pays £2 to choose a ball at random from the box.
The ball is then returned to the box.

The person wins £3 if a silver ball is chosen.
The person wins £8 if a gold ball is chosen.
There is no prize for choosing a bronze ball.

100 people each play the game once.

How much profit would you expect Geraint to make?
You must show all your working. [5]

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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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