GCSE

3300U20-1

A18-3300U20-1

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

WEDNESDAY, 14 NOVEMBER 2018 – MORNING

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 continuation page at the back of the booklet. Question numbers must be given for all work written on the continuation 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, communication and accuracy in writing.

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

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Formula List - Foundation Tier

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

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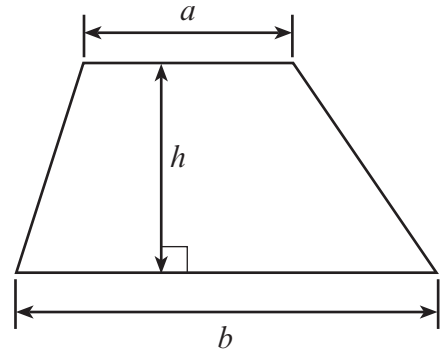
1. Fill in the boxes below to make each calculation correct. [4]

74p	+	£2.68	=	£ ....
£	+	£2.89	=	£3.46
5	×	93p	=	£ ....
....	×	£0.15	=	£6.30

Space for working:

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Turn over.

2. *(a)* Write thirteen point two five in figures. [1]

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(b) Write the number 60 043 in words. [1]

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(c) Here are four digits:

<center>8   5   3   7</center>

      (i) Use each of these digits once and once only.
What is the **largest** number that can be made? [1]

      (ii) Use **three** of these digits once and once only.
What is the **smallest even** number that can be made? [1]

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3. Here are 9 numbers:

27   19   20   32   21   29   20   24   33

(a) Find the mean of these numbers. [3]

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(b) Neil says,

"To find the median, you just choose the middle number in the list.
The median of these numbers is 21."

Neil's median is incorrect.
Explain what is wrong with Neil's method. [1]

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4. *(a)* One of the numbers below is a multiple of 13.
Circle the correct answer. [1]

2226   3213   1628   2843   6110

(b) Find the value of $\dfrac{30^2 + 20^2}{26}$. [1]

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5. *(a)* Complete the following figure so that it is symmetrical about the line AB. [2]
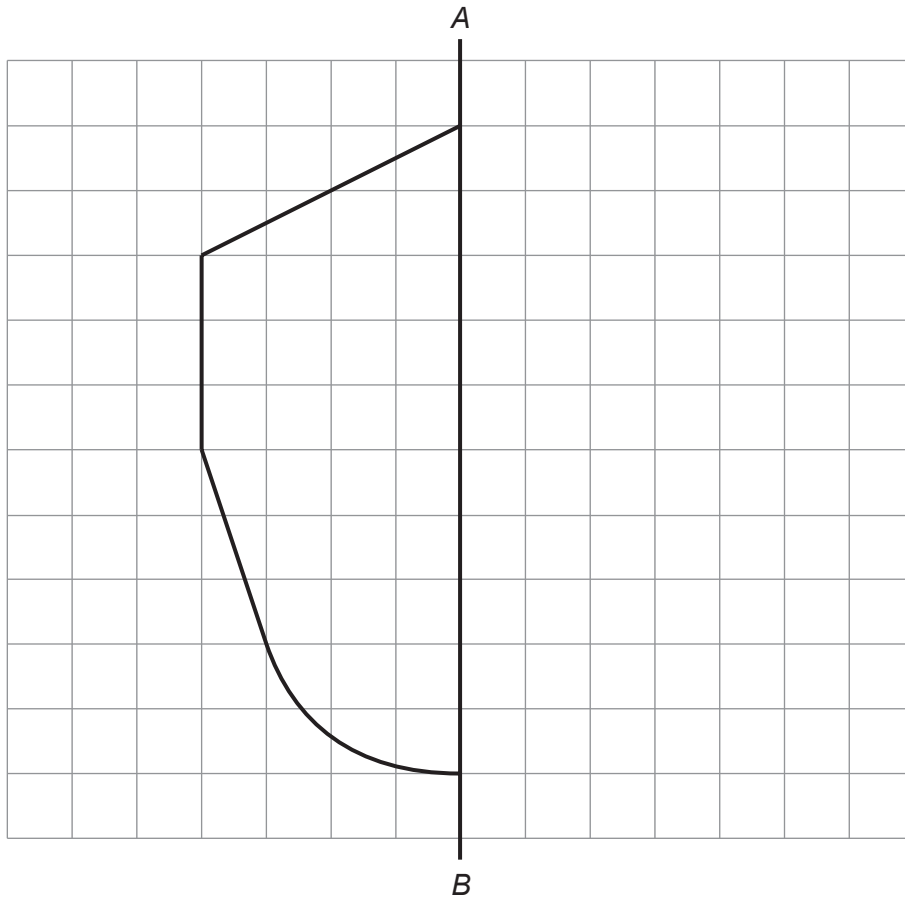
(b) Ben draws a shape that has:
- 4 sides,
- 4 angles of equal size,
- a pair of sides of length 4 cm, and
- a pair of sides of length 6 cm.

What type of shape has Ben drawn?
Circle the correct answer. [1]

square   rhombus   trapezium   rectangle   kite

(c) Write down the special name for the shape below. [1]

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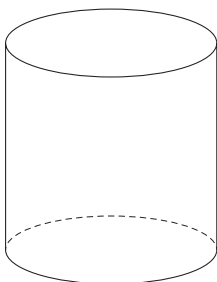
6. *(a)* Efa thinks of two whole numbers.
She multiplies her numbers together.
She then adds 12.
The answer is 120.

What two numbers could Efa have been thinking about? [2]

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Efa's two numbers could be .... and ....

(b) Jac thinks of a number.
25% of his number is 35.

What is $\frac{1}{10}$ of Jac's number?

You must show all your working. [3]

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$\frac{1}{10}$ of Jac's number is ....

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7. *(a)* One of the values below is the solution to $k + 3 = 6 \cdot 9$
Circle the correct answer. [1]

     2·3   20·7   3·9   9·9   207

(b) Simplify the expression $12w + 15w - w$. [1]

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(c) Write down the next term in the following sequence. [1]

     14, 20, 26, 32, ...

(d) Describe in words the rule for continuing the following sequence. [1]

     4, 12, 36, 108, …

Rule: ....

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(e) Look at the sequence:

     8, 16, 24, 32, …

Will any of the first 100 terms of this sequence be a prime number?
Explain how you know. [1]

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

Mair draws three different rectangles.
Each rectangle has an area of $20\,cm^2$.
Each of the sides of her rectangles is a whole number of centimetres.

Find the perimeter of each of Mair's rectangles.
You must show all your working.   [3 + 2 OCW]

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(3300U20-1)   **Turn over.**

9. Find 57% of 83·5.
Give your answer correct to 1 decimal place. [3]

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10. A cuboid has a volume of 97·6 cm³.
The length of the cuboid is 6·1 cm and its width is 5 cm.
Calculate the height of the cuboid. [2]

5 cm

6·1 cm

Diagram not drawn to scale

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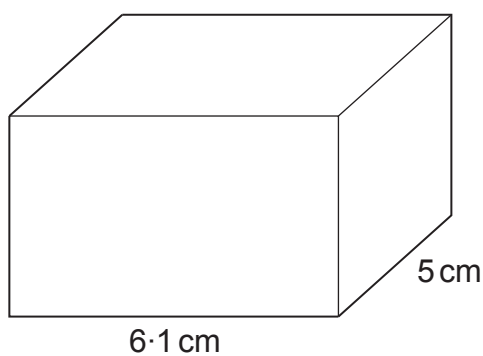
11. One day, Gwyn was asleep for 8 hours and awake for the remaining hours.

Draw an accurate pie chart to illustrate this information. [4]

<u>Pie chart showing Gwyn's sleeping and waking hours</u>.

Space for working:

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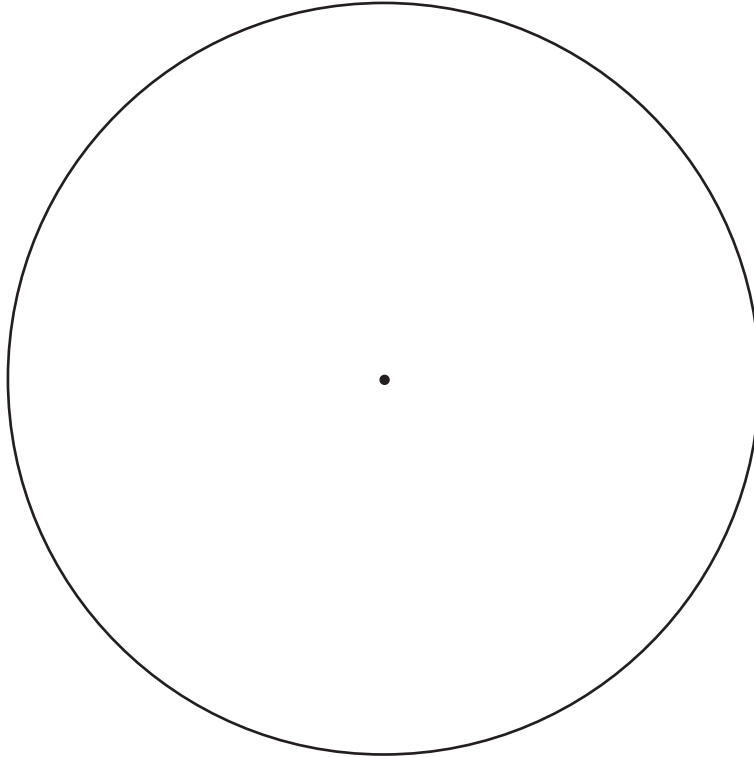
12. Choose any number.

Show that $\dfrac{1}{5}$ of 25% of your number = $\dfrac{1}{4}$ of 20% of your number. [4]

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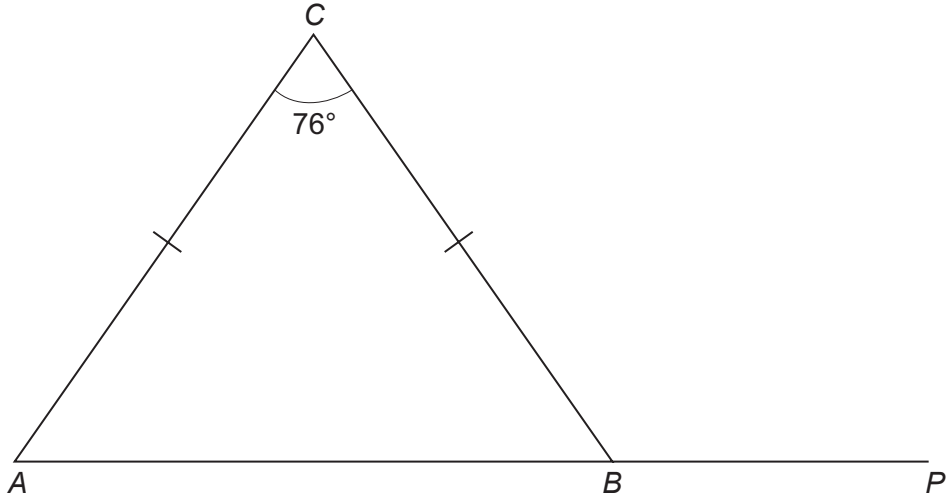
13. *ABC* is an isosceles triangle and *ABP* is a straight line.
$AC = BC$ and $A\hat{C}B = 76°$.

C

76°

A   B   P

Diagram not drawn to scale

Calculate the size of $C\hat{B}P$.
You must show all your working.   [3]

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14. *(a)* Solve $\dfrac{m}{2} = 4 \cdot 8$. [1]

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(b) The nth term of a sequence is given by $3n - 20$.

What is the value of the 6th term? [1]

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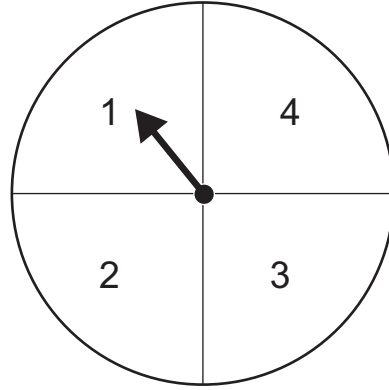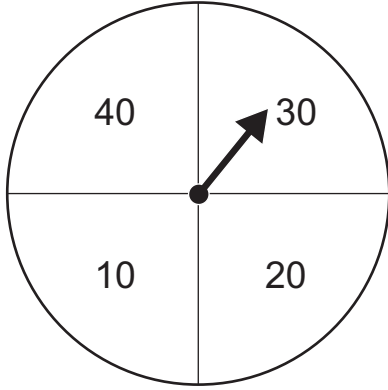**15.** Two fair spinners are divided into quarters as shown below.
One spinner shows the values 10, 20, 30 and 40.
The other spinner shows the values 1, 2, 3 and 4.

The two spinners are spun and the values shown are added together to form a number.
For example, the diagram above would form the number 31.

Consider all the possible numbers that can be formed.
Calculate the probability that the spinners will form a number that is a multiple of 7.
You must show all your working in order to justify your answer. [4]

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16. *(a)* Calculate the approximate difference in length between 1 mile and 1·5 km.
Give your answer in metres. [3]

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(b) Convert an area of $4\,m^2$ into cm^2. [2]

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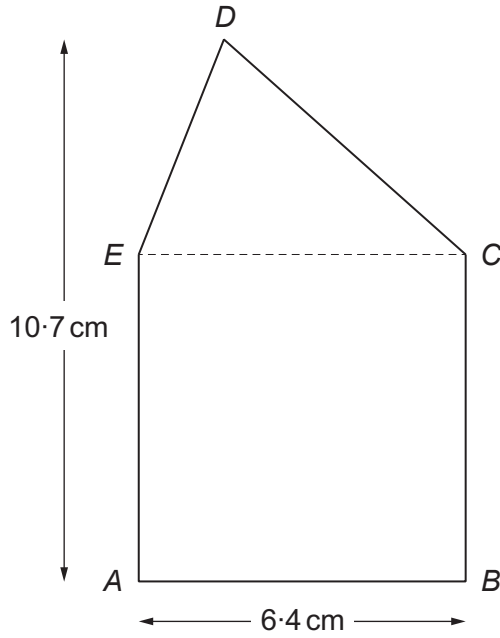$$4\,m^2 = \text{...}\ cm^2$$

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17. *ABCE* is a square.

Calculate the area of the shape *ABCDE* shown below. [5]

Diagram not drawn to scale

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

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