Surname		Centre Number	Candidate Number
Other Names			0

WJEC CBAC

GCSE

4351/01

A14-4351-01

MATHEMATICS (UNITISED SCHEME)
UNIT 1: Mathematics In Everyday Life
FOUNDATION TIER

A.M. WEDNESDAY, 5 November 2014

1 hour 15 minutes

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

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.

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.

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.
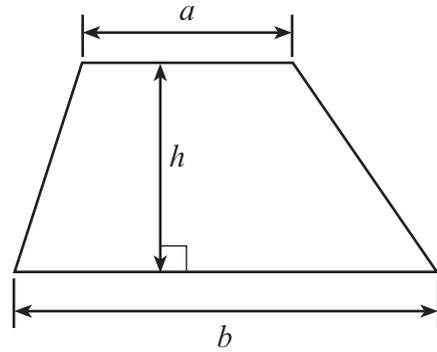
You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **5**.

CJ*(A14-4351-01)

Formula List

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

Volume of prism = area of cross-section × length
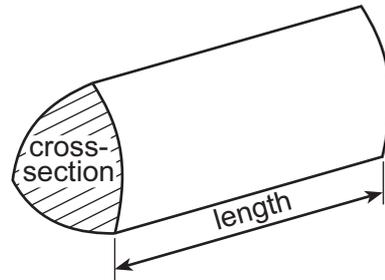
1. The mean temperature at the summit of Snowdon was recorded for each month from November to March.
The results are summarised below.

Month	November	December	January	February	March
Mean Temperature (°C)	3	−5	−8	−2	7

(a) List the **months** in order, starting with the month with the lowest mean temperature, up to the month with the highest mean temperature. [1]

       Lowest   *Highest*

Month: ....

(b) How many of these months had a mean temperature below 0°C? [1]

....

(c) What was the difference in temperature between the lowest and highest mean temperatures given in the table? [1]

....

(d) In November, the mean temperature at the summit of Ben Nevis was 5°C lower than the mean temperature at the summit of Snowdon.
What was the mean temperature at the summit of Ben Nevis in November? [1]

....

2. An advertising studio is given the following instructions from a client.

Instructions

We would like our company logo to be as follows:

- A straight horizontal line of length 11 cm.
- A circle of radius 4 cm, with its centre at the midpoint of the horizontal line.
- A straight line drawn inside the circle, at 70° to the horizontal line, as shown in the sketch below.

Sketch
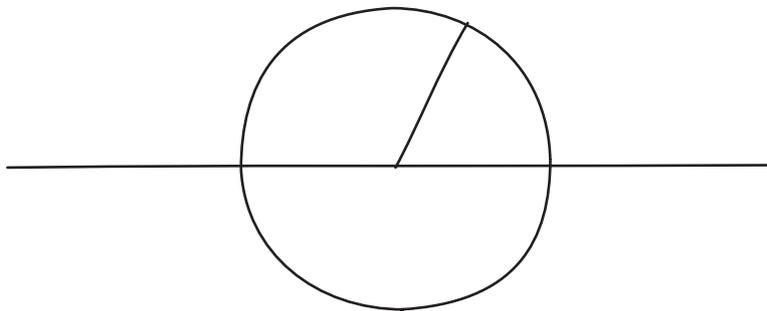
Make an **accurate** drawing of the logo required in the space below. [4]

3. A band hired a concert hall for two nights.
They would only hire the hall for a third night if at least 0·9 of the tickets were sold for either of the first two nights.

On the first night, 82% of the tickets were sold.

On the second night, $\frac{3}{4}$ of the tickets were sold.

Did the band hire the concert hall for a third night?
You must **show all your working**, explaining clearly how you decided. [3]

4. The bar chart shown below was drawn using information found on an internet web page. It shows the number of mountains in each of the three countries of England, Ireland and Wales, whose heights are in the range 800 metres to 1000 metres.

Number of mountains
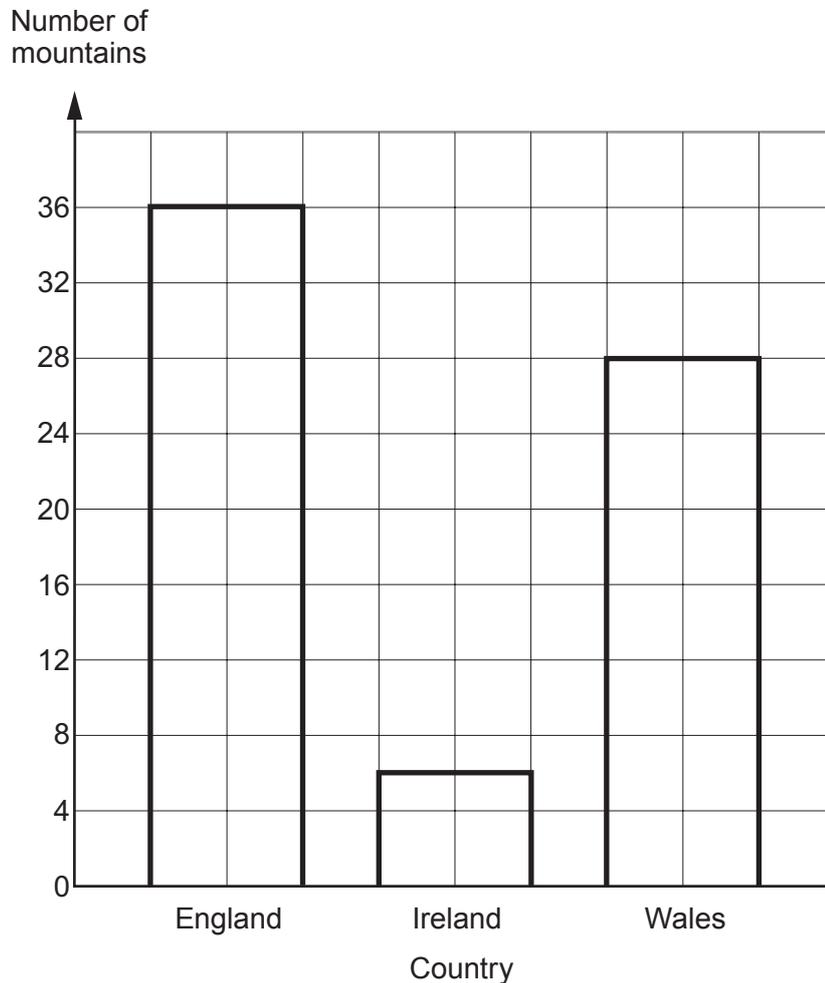
Country

(a) How many mountains are there in Wales whose heights are in the range 800 m to 1000 m? [1]

....

(b) How many mountains are there altogether in the three countries whose heights are in the range 800 m to 1000 m? [1]

....

....

(c) There are 280 mountains in Scotland whose heights are in the range 800 m to 1000 m.

In the box below, draw a pictogram which compares the data for Scotland with the **total for the other three countries**.

Use ☐ to represent 40 mountains.   [2]

Scotland	
Total for England, Ireland and Wales	

(4351-01)   **Turn over.**

5. *You will be assessed on the quality of your written communication in this question.*

Two years ago, a local council began renting out garden allotments.
The council owned 60 allotments of equal size.
The rent charged for each allotment was £150 per year.

In the first year, three-quarters of the allotments were rented.
In the second year, 80% of the allotments were rented.

Calculate the total amount of money the council collected in rent over these two years.
You must show all your working. [9]

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

6. Brother and sister, Nigel and Rhian, have been taking part in a swimming festival.

Rhian tells her mother, "I won three times as many medals as Nigel".
Nigel tells his mother, "Rhian won four more medals than me".

Both were telling the truth.
How many medals did each of them win? [2]

....

....

....

....

Nigel won ....   Rhian won ....

7. Three neighbours hired a cement mixer.
The cost of hiring the mixer is given by the following formula.

total cost = £30 per day + insurance

(a) They hired the mixer for four days at a total cost of £144.
How much did they pay for the insurance? [2]

....

....

....

....

(b) One of the neighbours said that he would pay $\frac{2}{3}$ of the total cost, as he would be using the mixer the most. The other two neighbours shared the remaining cost equally.

How much did each of these two neighbours pay? [3]

....

....

....

....

....

....

....

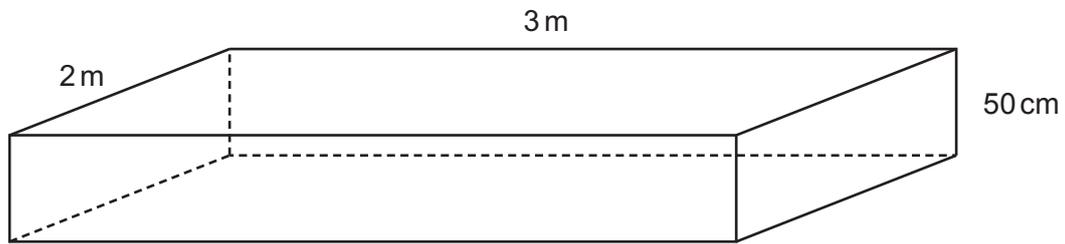**8.** An open rectangular water tank has dimensions as shown below.

Diagram not drawn to scale

(a) What is the volume of water in the tank when it is completely filled?
Give your answer in cubic metres (m³). [3]

....

....

....

....

....

(b) A special material is used to treat all the joins between any two sides and also between each side and the base of the tank.
This material costs £4 per metre.
Calculate the cost of using this material on this tank. [3]

....

....

....

....

....

....

....

9. Sally went on a trip to South Africa.

    (a) Before departing, she exchanged £480 into rand.
          The exchange rate was £1 = 13·25 rand.
          How many rand did Sally receive? [2]

....

....

....

....

    (b) Before departing, she also paid £52 for a safari tour in South Africa.
          This tour would have cost her 795 rand if she had paid for it on the day of the tour.
          Using the same exchange rate, calculate the difference **in pounds** between these two
          prices. [3]

....

....

....

....

....

....

....

10. A cycle club organised a race that takes place over a fortnight.
In the race, the competitors travelled a distance of 320 miles in England and 480 kilometres in France.
In which country did the race cover the most distance?
What was the difference between these distances? [3]

....

....

....

....

....

....

....

Country in which most distance was covered was ....

Difference in the distance covered was ....

11. The district councils for Llankavani and Rossmuch have both been considering the number of complaints received from residents over a ten-year period.
The graphs shown below were published in a local newspaper under the following headline.

How satisfied are you with your Council?

Llankavani Council

Number of complaints

600

500

2004   2014   Year

Rossmuch Council

Number of complaints

2000

1000

500

2004   2014   Year
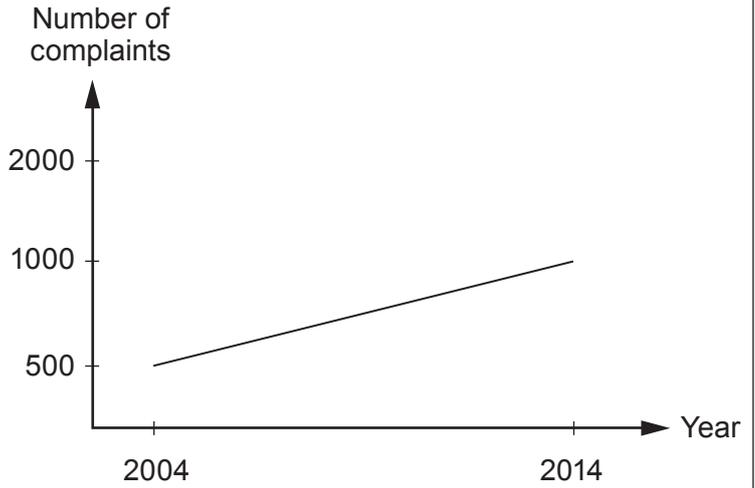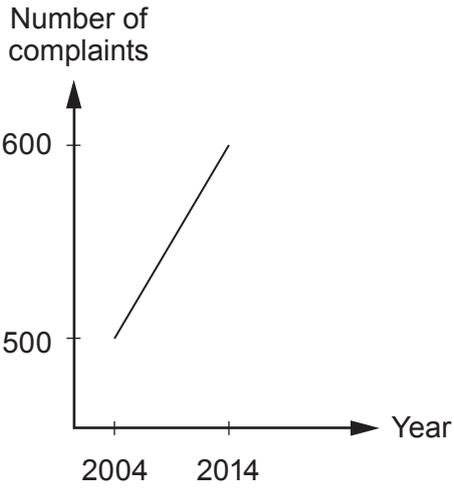
(a) Looking only at the two graph lines drawn, how could someone mistakenly think that there has been a greater increase in complaints to the Llankavani council than to the Rossmuch council? [1]
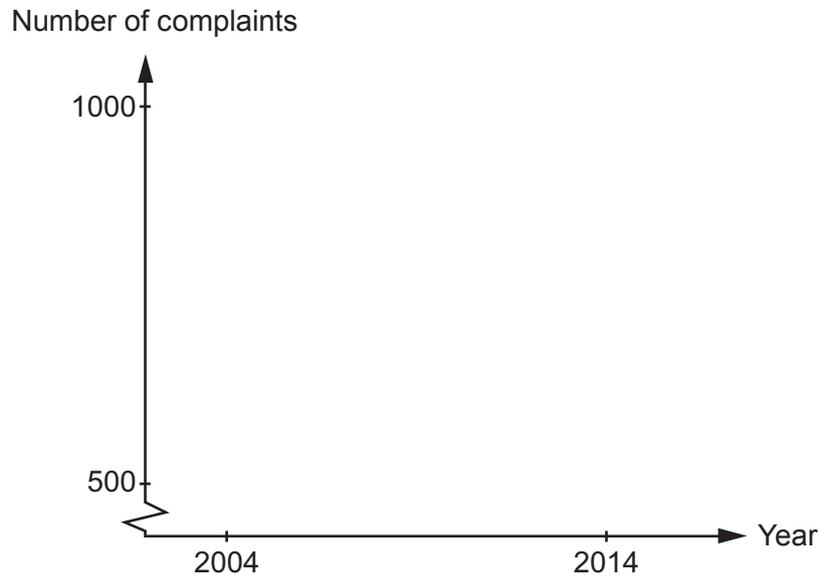
....

....

....

(b) Give **one** reason why these graphs cannot be easily compared. [1]

....

....

(c) On the diagram below, use a suitable uniform scale on the vertical axis and draw two lines that will show the information for Llankavani and Rossmuch.
Label each line with the name of the council it represents. [3]

Number of complaints

1000

500

2004   2014   Year

12. Catrin and Samir each played a game ten times.
In each game, between one and five points were scored.

Catrin had a mean score of 2·7 points for her ten games.
The range of the number of points she scored on her games was 4.

Samir recorded his scores as shown on the grid below.

Number of games
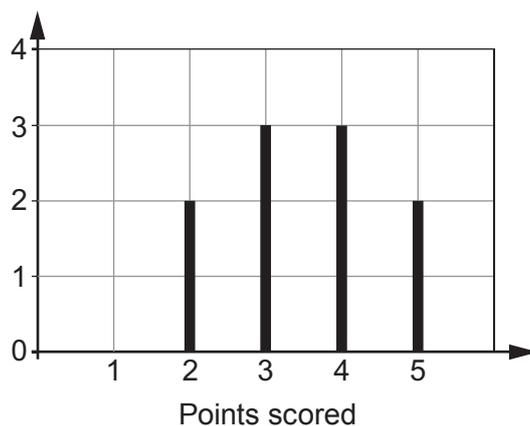
Points scored

(a) Who had the bigger mean score?
You **must** give a reason for your answer. [1]

....

....

....

(b) Who had the bigger range of the number of points scored?
You **must** give a reason for your answer. [1]

....

....

....

13. In a Park and Ride scheme, people leave their cars on the outskirts of a town and travel into town by bus.
A survey was carried out to decide if a town should start a Park and Ride scheme.

Shoppers in the town were asked the following four questions.

Q1. *Did you travel into town by car?*

                                 YES ☐   *NO* ☐

Q2. *What type of car do you have?*

....

Q3. *Was it easy to find a place in town to park your car?*

                                 YES ☐   *NO* ☐

Q4. *How many times would you use a Park and Ride, if available?*

1-5 times   *6-10 times*   *more than 10 times*   *less than 20 times*

☐   ☐   ☐   ☐

(a) Which one of the first **three** questions would you remove?
You must give a reason. [1]

....

....

(b) Give **two** reasons why question 4 is not suitable. [2]

Reason 1 ....

....

....

Reason 2 ....

....

....

14. The grid below can be used to find the distances, in miles, between four schools labelled A, B, C and D.

	A	B	C	D
A		9	7	4
B	9		12	6
C	7	12		5
D	4	6	5	

For example, the distance between school D and school B is 6 miles.

	A	B	C	D
A		9	7	4
B	9		12	6
C	7	12		5
D	4	⑥	5	

Mr Morgan, from school A, was required to visit all the other three schools and then return to school A.
He went from A to B, then from B to C, then from C to D before returning from D to A. This was a total of 30 miles.

(a) Mr Morgan took 1 hour and 30 minutes to travel this distance of 30 miles in his car. Calculate his average speed, in miles per hour. [3]

....

....

....

....

....

....

(b) Find **two** other **different** routes Mr Morgan could have taken, starting and finishing at school A.
You must calculate the total distance covered in each case. [3]

....
....
....
....
....
....
....
....
....
....

15. Eleri invests £3700 for 3 years at 2% per annum compound interest.
Calculate the value of her investment at the end of the 3 years.
Give your answer correct to the nearest penny. [4]

END OF PAPER