WJEC CBAC

GCSE

4351/01

MATHEMATICS (UNITISED SCHEME)
UNIT 1: MATHEMATICS IN EVERYDAY LIFE
FOUNDATION TIER

P.M. MONDAY, 11 June 2012

$1\frac{1}{4}$ hours

Suitable for Modified Language Candidates

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

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, taking care to number the question(s) correctly.

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 **6**.

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

Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$
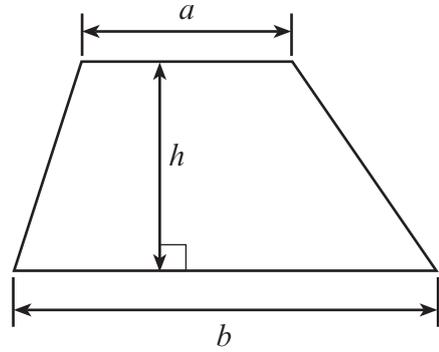
Volume of prism = area of cross-section × length

(4351-01)
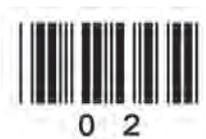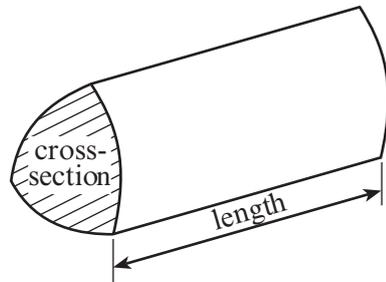
1. *(a)* An election for the post of town mayor was held.
There were two candidates, S. Hill and F. Dodd.

(i) The result must be displayed on the local council's notice board, both in figures and in words.
Complete the Election Result sheet below. Write the number of votes for S. Hill in words and the number of votes for F. Dodd in figures.

> **Election Result**
>
> S. Hill: 20 608
>
> ....
>
> ....
>
> F. Dodd: ....
>
>   Thirteen thousand and seventy nine

[2]

(ii) The local paper had a headline that gave the **total** number of people who voted. The number was rounded **to the nearest 100**.

Complete the headline using figures.

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....

'Around .... **voted in the election for mayor.'**

[2]

(b) In everyday life, how accurately would you want to give each of the measurements given below?

You may choose from the following.

millimetre (mm)   centimetre (cm)   metre (m)   kilometre (km)

I would give the length of a football pitch to the nearest   ....

I would measure the thickness of a letter to be posted to the nearest

....

[2]

Turn over.

2. Laura and Colin have both hit their golf balls in a competition.

They find how far **the centres** of their golf balls are from the hole.

Laura's measurement
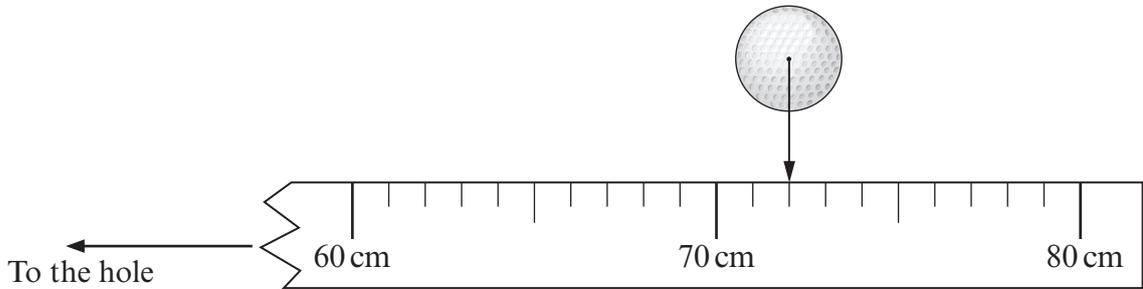
Colin's measurement
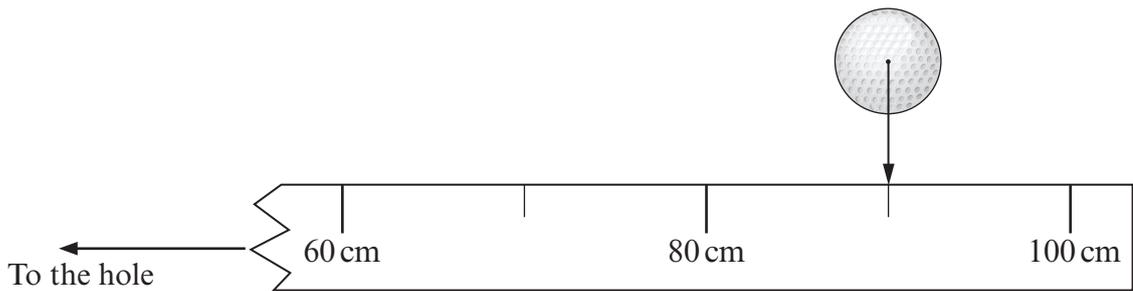
(a) Write down how far each ball is from the hole.

Laura's ball .... cm

Colin's ball .... cm

[2]

(b) Whose ball is nearer the hole? By how many centimetres?

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[1]

(4351-01)
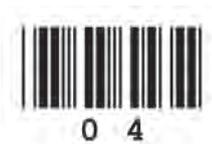
3. In a competition a player gets 1 point for a win, $\frac{1}{2}$ a point for a draw and no points for a loss. Each player plays 10 games.

Calculate the total number of points gained by a player who loses 2 games, draws 5 games and wins all the rest.

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[3]

4. The mid-day temperature at the summit of Snowdon was recorded over a seven-day period.

The recorded temperatures for five of those days are shown in the table below.

Tuesday was 2°C warmer than Monday.

Saturday was 6°C colder than Friday.

(a) Complete the table for Tuesday and for Saturday.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature	−4°C		0°C	2°C	1°C		−3°C

[2]

(b) What was the range of the recorded temperatures over the seven days?

....

[1]

5. A water company uses the following formula to calculate a customer's bill.

Water bill = Cubic metres used × £1.24 + Number of days × £0.08

A customer used **55 cubic metres** of water over a period of **181 days**.

Calculate this customer's **water bill**.

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[5]

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

A band was hired to play at the local hall.

The hall was hired for 4 hours at a cost of £20 per hour.
The band cost £150 to hire.
Tickets for the event cost £5 each. 128 tickets were sold.

Calculate the following:

  (i)   how much money was spent
 (ii)   how much money was collected
(iii)   the profit or loss made on the event

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[9]

7. The table below gives three temperature readings, both in Celsius (°C) and in Fahrenheit (°F).

°C	–5	5	25
°F	23	41	77

(a) Draw a conversion graph between °C and °F. Use the graph paper below for your answer. [3]

(4351-01)
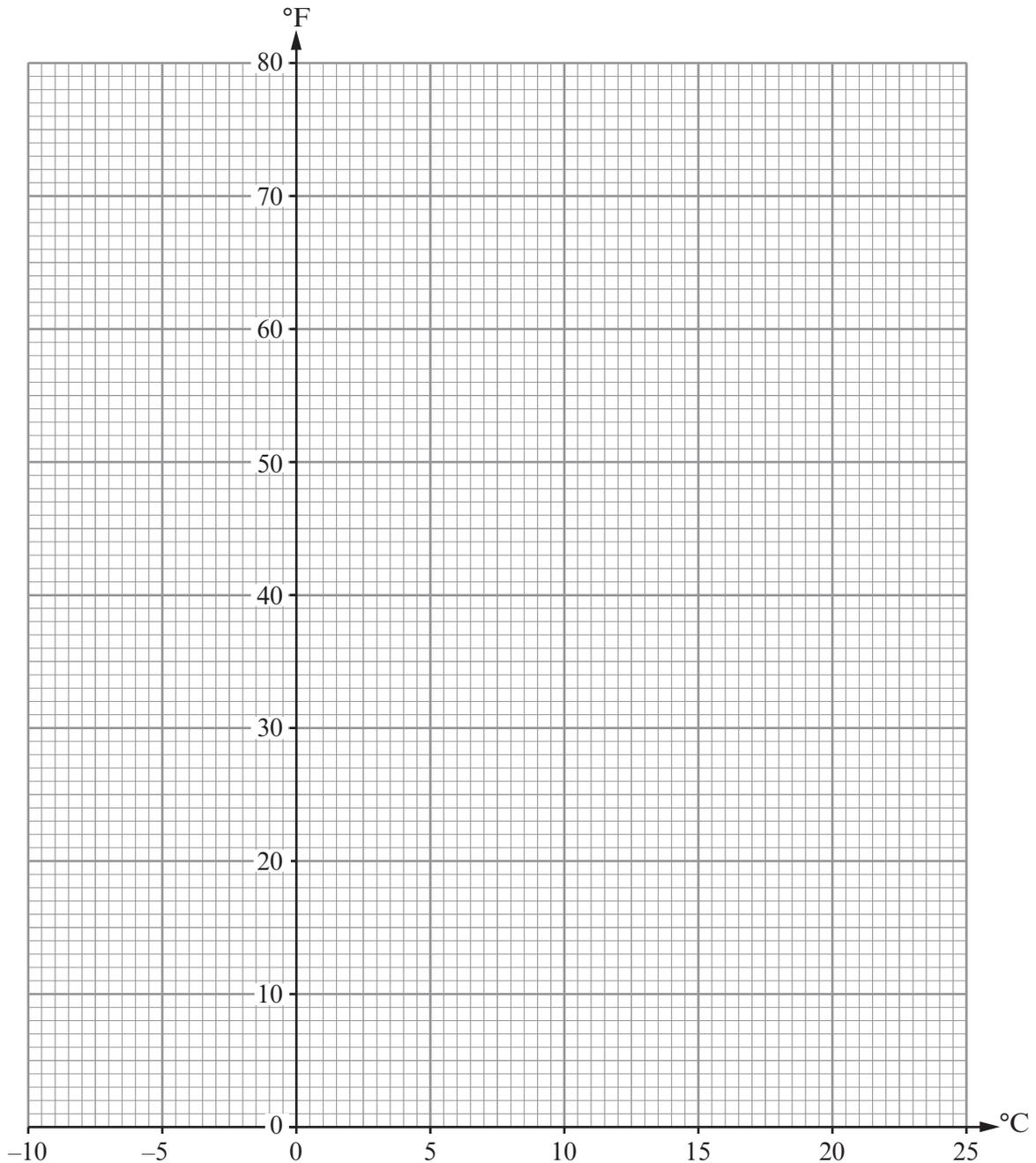
(b)   Water freezes at 0 °C under normal conditions.
Use your graph to find the temperature, in °F, at which water freezes under normal
conditions.

....
[1]

(c)   Which is the higher temperature, 60 °F or 18 °C?
You must give a clear reason for your answer.

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[1]

Turn over.

8. *(a)* A building site is a large rectangle with sides of length 1·4 km and 0·8 km.
Calculate the area of this site.

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[2]

(b) A plan of this building site shows a triangular play area *ABC*.

The scale used for the plan is

1 cm represents 10 metres.

The actual distance between the points *A*, *B* and *C* are *AB* = 100 metres, *AC* = 60 metres and *BC* = 75 metres.
The point *B* is due East of point *A*.

Draw an accurate diagram to show where these points would be on the plan.
Point *A* has been put in for you.

[4]

N

A

9. Shafira went on a trip to New York.

(a) She changed £800 into dollars ($). The exchange rate was £1 = $1.57.
How many dollars did she receive?

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[2]

(b) In New York she bought a coat for $199.
Calculate the cost of this coat. Use the same exchange rate. Give your answer **to the
nearest pound**.

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[3]

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

10. The diagram below shows the number of days each of 10 workers were absent from work last month.

Number of workers
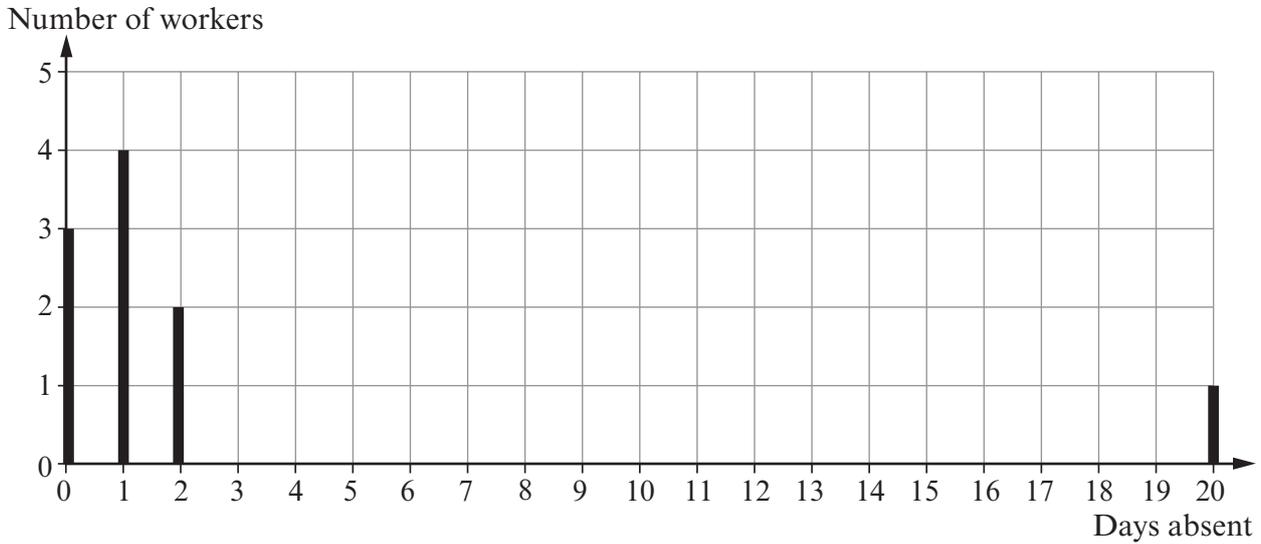
Days absent

(a) What is the modal number of days absent?

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[1]

(b) Calculate the mean number of days' absence of the workers.

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[3]

(c) Which measure, the mode or the mean, best describes the number of absences in this case?
You must give an explanation for your choice.

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[2]

11. A French bus company runs a service from Cherbourg to Rennes.
The distance between the two towns is 172 kilometres.
Thierry catches the 13:45 bus at Cherbourg. He arrives in Rennes at 16:15.

What was the average speed of the bus in **miles per hour**?

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[5]

12. Gareth wants to test the following hypothesis.

'Most people spend more than 2 hours per night watching television.'

He plans to

- hand out a short questionnaire to people at the local fitness centre,

- ask the following questions,

   (i)   Do you think people watch too much television?

   (ii) How much time do you spend watching television?

- ask them to post their completed questionnaire using a pre-paid envelope.

Write down **three** unfavourable (bad) comments about this plan.

1. ....

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2. ....

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3. ....

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[3]

13. Find $\sqrt{6 \cdot 8^3}$ to 3 significant figures.

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[2]

14. Arnold went to buy some golf balls.
They were priced at £2 each. A box of 15 balls could be bought at a discount price of £24.

What was the percentage discount being offered when buying a box of 15 balls?

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[4]

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

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