Candidate forename		Candidate surname	

Centre number						Candidate number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

GCSE

B274B

MATHEMATICS C

(GRADUATED ASSESSMENT)

MODULE M4 – SECTION B

MONDAY 16 JANUARY 2012: Morning
DURATION: 30 minutes

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments
Tracing paper (optional)
Electronic calculator

READ INSTRUCTIONS OVERLEAF

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INSTRUCTIONS TO CANDIDATES

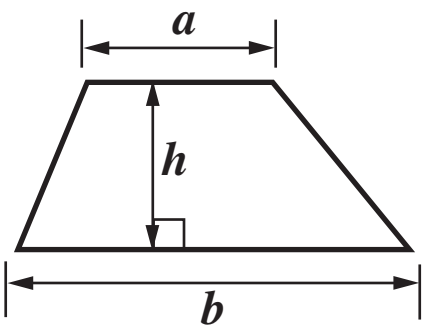
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

INFORMATION FOR CANDIDATES

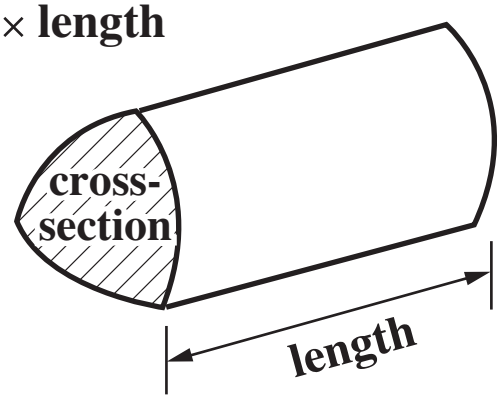
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 8.**
- **You are expected to use a calculator in Section B of this paper.**
- **The total number of marks for this Section is 25.**

FORMULAE SHEET

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



Volume of prism = (area of cross-section) × length



8 (a) Some clouds are 12 miles high.

How many kilometres is this?
Circle the best answer from the numbers in this box.

6	8	19	27	60	120

[1]

(b) One day about $\frac{1}{8}$ of the earth was covered by cloud.

What percentage of the earth was covered by cloud?

(b) _____ % [1]

(c) Cloud cover is measured in oktas.
An okta is the number of eighths of the sky covered in cloud, so

- **a clear sky is 0 oktas,**
- **a sky totally covered by clouds is 8 oktas,**
- **a sky $\frac{3}{8}$ covered in cloud is 3 oktas.**

How many oktas is a sky 50% covered by cloud?

(c) _____ oktas [1]

(d) Sue records the cloud cover, in oktas, at 9 am each day for seven days.
Here are her results.

1	**4**	**2**	**8**	**4**	**8**	**8**

Calculate

(i) the mean,

(d)(i) _____ oktas [3]

(ii) the range,

(ii) _____ oktas [1]

(iii) the median.

(iii) _____ oktas [1]

(iv) Sue also records the cloud cover at 3 pm on the same days.
Here is a summary of her results.

Cloud cover in oktas	
Time of observations: 3 pm	
Mean	= 3
Range	= 6
Median	= 2

Make one comparison between the cloud cover at 9 am and
the cloud cover at 3 pm.

_____

_____ **[1]**

9 (a) Rich goes to Barbados.
The Barbadian 25 cent coin is very similar to the UK 10p coin.
Rich gets 3 UK 10p coins mixed up with 8 Barbadian 25 cent coins.
He picks one of the coins without looking.

(i) What is the probability that Rich picks a Barbadian 25 cent coin?
Give your answer as a fraction.

(a)(i) _____ [1]

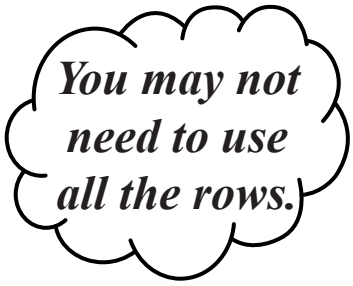
(ii) What is the probability that Rich picks a UK 10p coin?
Give your answer as a fraction.

(ii) _____ [1]

(b) A 5p coin weighs 3·25 g and a 10p coin weighs 6·5 g.

Choy has 10 coins, a mixture of 5p and 10p coins.
The total weight of the coins is 39 g.

How many of each coin does she have?
Use this table and trial and improvement to help you.



Number of 5p coins	Number of 10p coins	Total weight (g)
1	9	61·75
2	8	58·5

(b) _____ 5p coins and _____ 10p coins [3]

10 Mandy lives in London.
She wants to collect the rainwater from the flat roof of her shed.
The roof is a rectangle measuring 2 m by 5 m.

(a) Calculate the area of the shed roof.

(a) _____ m^2 [1]

(b) She found this rule for working out the number of gallons of water she could collect.

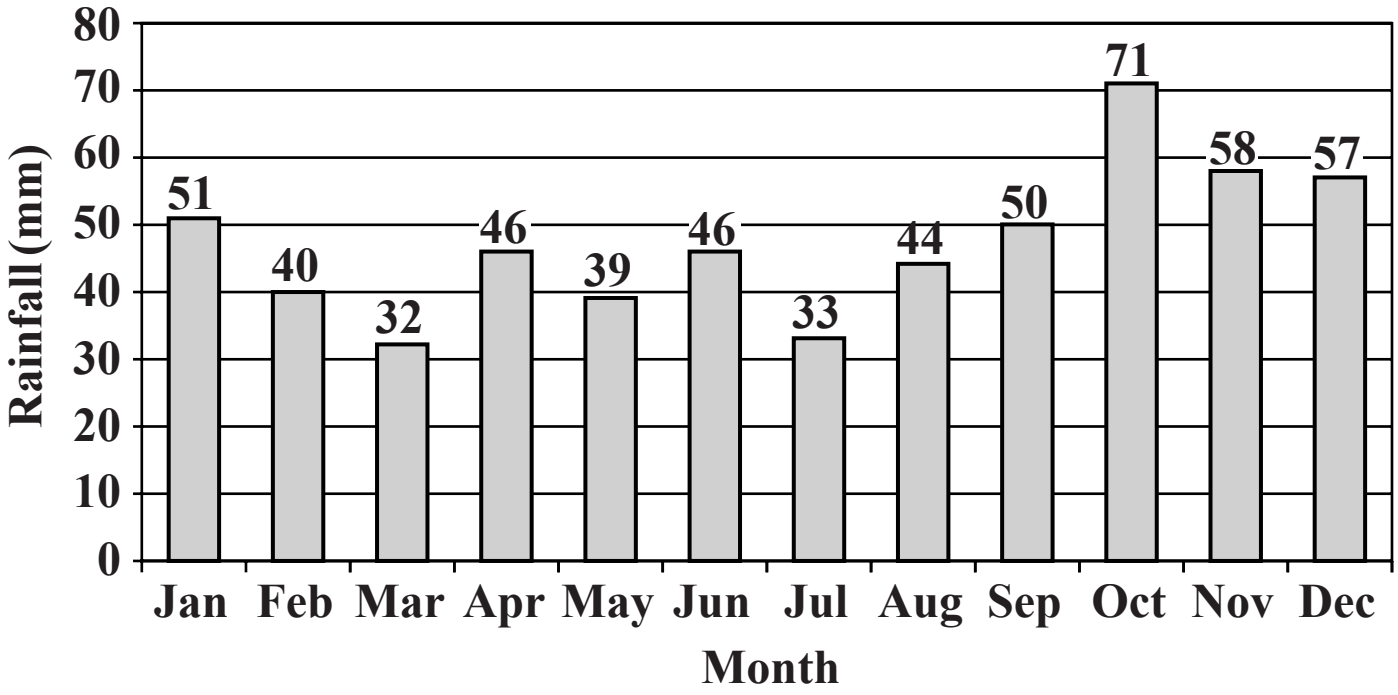
Number of gallons = 0·2 × A × R

***A* is the area of the roof in m^2**
***R* is the rainfall in mm**

(i) How many gallons could Mandy collect from her shed roof after 1 mm of rain?

(b)(i) _____ gallons [2]

(ii) This graph shows the monthly rainfall for London.

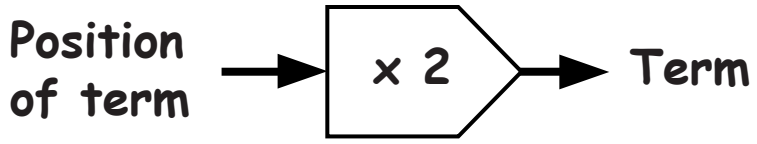


Find the total number of gallons of rainwater Mandy could collect from her shed roof in April and May.

(ii) _____ gallons [3]

TURN OVER FOR QUESTION 11

11 (a) This number machine generates a sequence.



(i) Complete this table to show the first four terms of the sequence.

Position of term	1	2	3	4
Term	2			

[1]

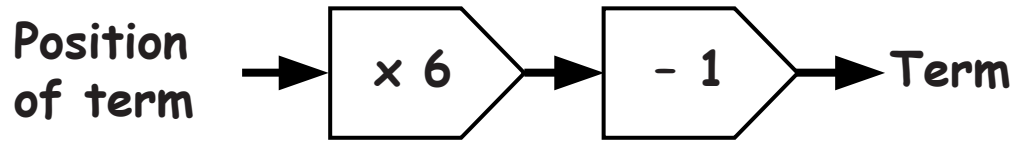
(ii) Circle the correct name for the terms in this sequence.

factors of 2 odd even

prime multiples of 4

[1]

(b) Lucy is investigating the sequence generated by this number machine.



The first two terms are 5 and 11.
Lucy says "All the numbers the number machine generates are prime."

Is she correct?
Investigate some more terms for yourself. [3]

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