

FOR OFFICIAL USE

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Total
Mark

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NATIONAL QUALIFICATIONS 2012

MATHEMATICS INTERMEDIATE 1

Units 1, 2 and
Applications of Mathematics
Paper 1 (Non-calculator)



X101/10/01

MONDAY, 21 MAY 9.00 AM – 9.35 AM

Fill in these boxes and read what is printed below.

Full name of centre

Town

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Forename(s)

Surname

Number of seat

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Date of birth

Day

Month

Year

Scottish candidate number

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- 1 You may **NOT** use a calculator.
- 2 Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
- 3 Full credit will be given only where the solution contains appropriate working.
- 4 Before leaving the examination room you must give this book to the Invigilator. If you do not you may lose all the marks for this paper.

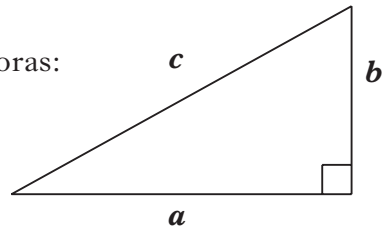
Use blue or black ink. Pencil may be used for graphs and diagrams only.



FORMULAE LIST

Circumference of a circle: $C = \pi d$
Area of a circle: $A = \pi r^2$
Curved surface area of a cylinder: $A = 2\pi r h$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$



Marks

All questions should be attempted.

1. (a) Find $8\cdot31 - 5\cdot6$.

1

(b) Find $0\cdot029 \times 400$.

1

(c) Find $\frac{2}{7}$ of 434.

1

[Turn over



Marks

2. A college class consists of 8 male and 12 female students.
A student is chosen at random from the class.
What is the probability that the student is male?
Give your answer as a fraction in its simplest form.

2



Marks

3. Sandie works in a factory. Her payslip for the week ending 17th March is shown below. There are **three** missing entries.

NAME:	Sandie Thompson Week ending: 17/3/12		
Basic Pay £229.84	Overtime £45.63	Bonus £35.00	Gross Pay
Income Tax £34.70	National Insurance £22.48	Pension	Total Deductions £76.43
			Net Pay

Calculate Sandie's:

(a) gross pay;

1

(b) net pay;

1

(c) pension.

2



Marks

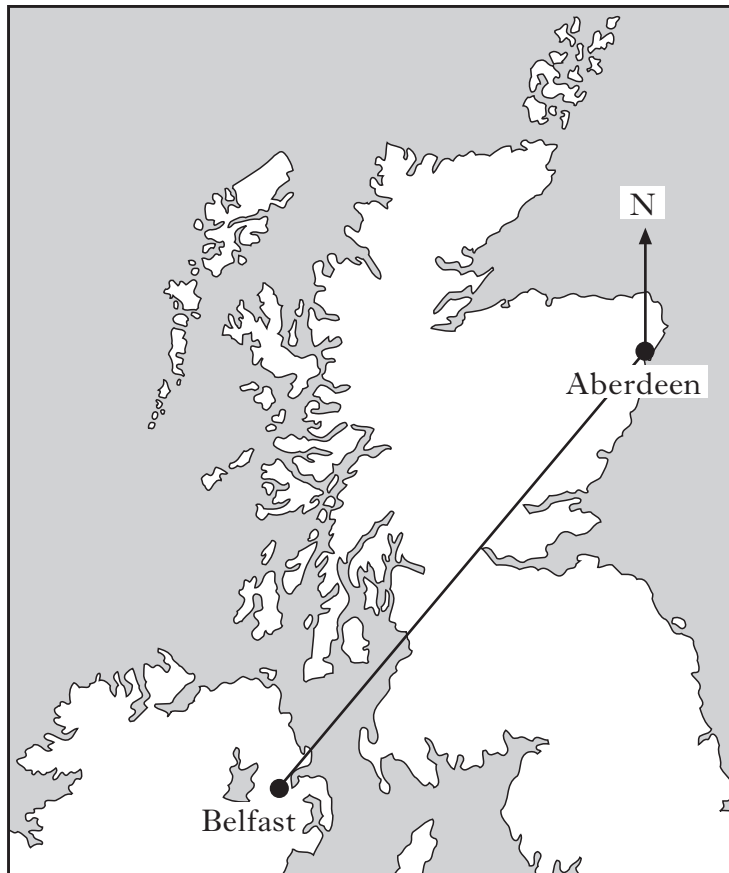
4. Linda sells make-up. Her basic pay is £50 per week.
She is also paid 30% commission on all sales **over £200**.
How much is she paid altogether in a week when she sells £620 worth
of make-up?

3



Marks

5. The map shows an aeroplane's flight path from Aberdeen to Belfast.



Scale: 1 cm to 50 km

Use the map to find the distance **and** bearing of Belfast from Aberdeen.



Marks

6. Two hundred teenagers were asked how many songs they had downloaded during the previous week.

The frequency table below shows their responses.

Number of Songs	Frequency
5	38
6	72
7	53
8	30
9	7
	Total = 200

- (a) Write down the modal number of songs downloaded.

1

- (b) Find the range of the number of songs downloaded.

1



Marks

6. (continued)

- (c) Complete the table below **and** find the mean number of songs downloaded.

Number of Songs	Frequency	Number of Songs × frequency
5	38	190
6	72	432
7	53	371
8	30	
9	7	
	Total = 200	Total =

3

[Turn over

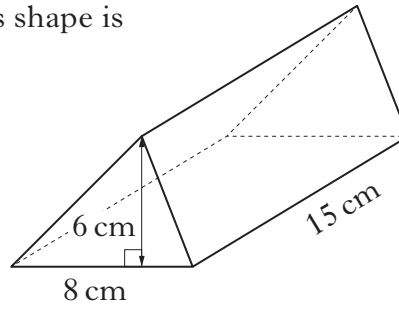


* X 1 0 1 1 0 0 1 0 9 *

Marks

7. (a) The formula for the volume of this shape is

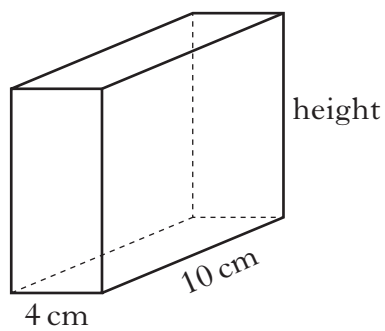
$$\text{Volume} = \text{area of end} \times \text{length}$$



The end of this shape is a triangle.

Use the formula to work out the volume of this shape.

(b) This cuboid has the same volume as the shape shown above.
Find the height of the cuboid.



3

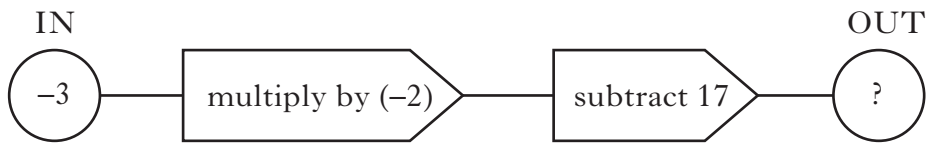
2



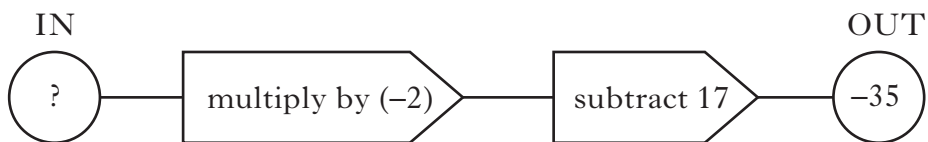
Marks

8. Find the missing number in each machine.

(a)



(b)



2

2

[END OF QUESTION PAPER]



ADDITIONAL SPACE FOR ANSWERS

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ADDITIONAL SPACE FOR ANSWERS

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