

FOR OFFICIAL USE

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Total Mark

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NATIONAL QUALIFICATIONS 2013

MATHEMATICS INTERMEDIATE 1

Units 1, 2 and

Applications of Mathematics

Paper 1 (Non-calculator)

WEDNESDAY, 22 MAY 9.00 AM – 9.35 AM



* X 1 0 1 1 0 0 1 *

X101/10/01

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.

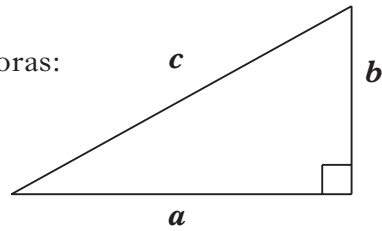


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FORMULAE LIST

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 $16 \cdot 7 + 5 \cdot 83$.

1

(b) Find $9 \times 2 \cdot 13$.

1

(c) Find 70% of 340.

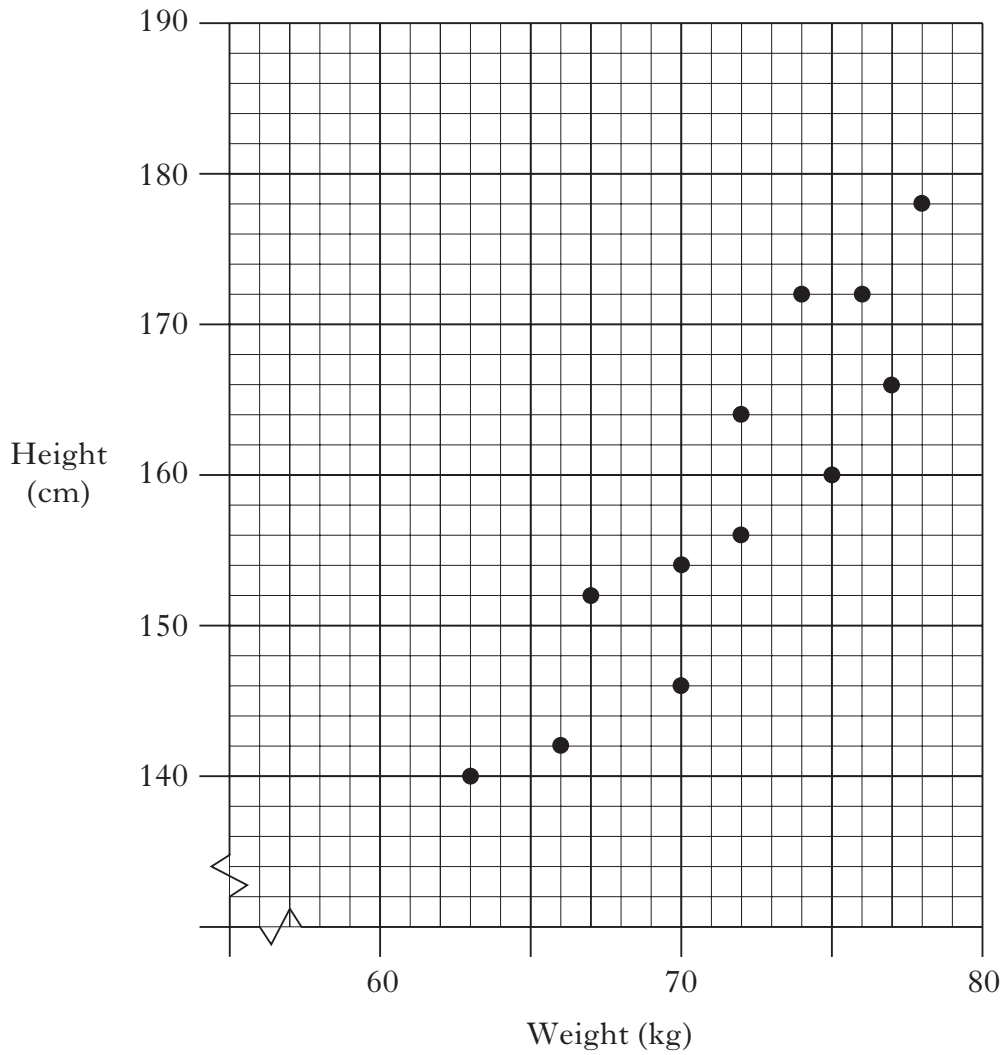
1

[Turn over



Marks

2. The scattergraph shows the weights and heights of a group of teenagers.



- (a) Draw a line of best fit through the points on the graph.

1

- (b) Use your line of best fit to estimate the height of a teenager whose weight is 80 kilograms.

1



Marks

3. Anna's basic rate of pay is £8·60 per hour for a 35 hour week.
Her overtime rate of pay is time and a half.
Complete her payslip for a week in which she works 3 hours overtime.

Payments				Deductions	
	Hours	Rate	Amount		Amount
Basic	35	£8·60	£301·00	Tax	£39·40
Overtime	3			National Insurance	£23·88
			Gross Pay	Total Deductions	£63·28
				Net Pay	

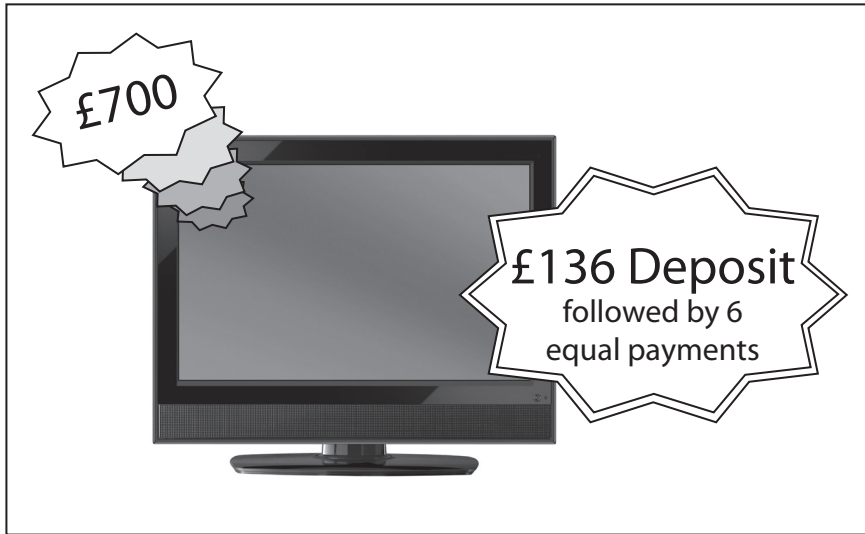
3

[Turn over



Marks

4. The hire purchase price of this television is £700.



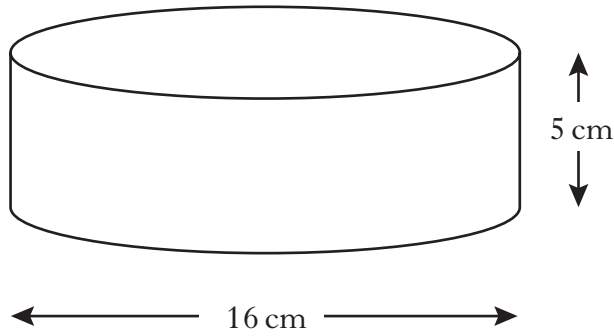
How much will each payment be?

3



Marks

5. A cylinder has diameter 16 centimetres and height 5 centimetres.



Calculate the **curved** surface area of the cylinder.

Use $\pi = 3.14$.

3

[Turn over



Marks

6. Fifty students completed a fitness test known as a “Beep Test”.
The fitness levels they achieved are shown in the frequency table below.

Fitness Level	Number of Students	Fitness Level \times Number of Students
5	4	20
6	5	30
7	9	63
8	21	
9	6	
10	5	
	Total = 50	Total =

- (a) Complete the table above.
- (b) Find the mean fitness level achieved by these students.

1

2



Marks

7. A bag contains 8 blue marbles, 5 red marbles and 2 yellow marbles.

(a) A marble is taken from the bag.

What is the probability that the marble is yellow?

1

(b) This marble is put back in the bag.

One red marble and one blue marble are then removed.

What is the probability that the next marble taken from the bag is blue?

2

[Turn over



Marks

8. Two trains run from Glasgow to London.
They both have the same journey time.

	1st Train	2nd Train
Glasgow depart	1650	2215
London arrive	2125	

What time does the 2nd train arrive in London?

3

9. Evaluate $2gh - w$ when $g = -10$, $h = 4$ and $w = -30$.

3



Marks

10. (a) Before he went on holiday to Australia, Jack changed £2000 into Australian dollars.

The exchange rate was £1 = AU\$1.58.

How many Australian dollars did Jack receive for £2000?

2

(b) While in Australia he changed a further £400 into Australian dollars.

He received AU\$620.

What was the new exchange rate?

2

[END OF QUESTION PAPER]



ADDITIONAL SPACE FOR ANSWERS

DO NOT
WRITE IN
THIS
MARGIN

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