OCR

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Monday 9 June 2014 – Morning

GCSE MATHEMATICS A

A501/01 Unit A (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Scientific or graphical calculator
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour

* A 5 0 1 0 1 *

* T 2 6 8 1 0 6 8 0 *

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. 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.
- Your answers should be supported with appropriate 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).
- Do **not** write in the bar codes.

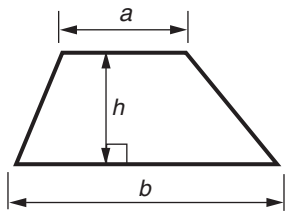
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

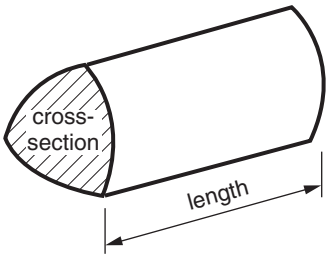
You are permitted to use a calculator for this paper

Formulae Sheet: Foundation Tier

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



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



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Answer **all** the questions.

1 Choose from these metric units to complete the sentences below.

metres	grams	litres
millilitres	kilometres	
kilograms	centimetres	

A tennis ball weighs 57 ..... .

The distance from London to Birmingham is 163 ..... .

The petrol tank of a car holds 47 ..... of petrol. **[3]**

2 **(a)** Find the two numbers which multiply together to make 30 **and** add together to make 17.

(a) ..... **[2]**

(b) 36 is a square number.

Find two factors of 36, other than 36 itself, which are also square numbers.

(b) ..... and ..... **[2]**

3 Vivek has £10079 in his bank account.

(a) Write 10079 in words.

.....

..... **[1]**

(b) Vivek pays a bill for this amount from his account:

five hundred and forty-two pounds eighty pence.

(i) Write this amount in pounds, in figures.

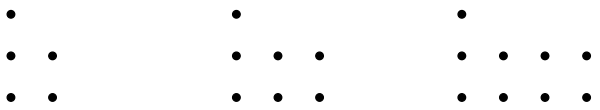
(b)(i) £ ..... **[1]**

(ii) How much money is left in Vivek's account after paying this bill?

(ii) £ ..... **[2]**

4 Here are the first three dot patterns in a sequence.

Pattern 1 Pattern 2 Pattern 3 Pattern 4



(a) Draw Pattern 4 in this sequence. **[1]**

(b) Without drawing, work out how many dots are in Pattern 7 of this sequence.
Explain how you worked out your answer.

..... because .....

..... **[2]**

(c) Find how many dots are in Pattern 100 of this sequence.

(c) ..... **[1]**

5 Denise is making a cushion cover.
She needs 3 buttons and 2 metres of edging.
Denise is going to choose buttons **and** edging from the ones below.

heart button: 36p each

square button: 25p each

flower button: 48p each

cord edging: £1.10 for one metre

striped edging: 82p for one metre

Denise has **only £3** to spend.

Complete the table to show one possible choice that Denise can make.

Button shape	Cost of one button	Cost of 3 buttons
_____	_____	_____
Type of edging	Cost for one metre	Cost for 2 metres
_____	_____	_____
	Total cost	£ _____

[6]

6 **(a)** Simplify.

(i) $4a + 3a$

(a)(i) ..... **[1]**

(ii) $5a \times a$

(ii) ..... **[1]**

(b) Solve.

(i) $c - 3 = 7$

(b)(i) ..... **[1]**

(ii) $f + 5 = 2$

(ii) ..... **[1]**

(iii) $5g = 20$

(iii) ..... **[1]**

(c) Jane is j years old.
Her brother Sam is 3 years older than Jane.

Write an expression for Sam's age in terms of j.

(c) ..... years **[1]**

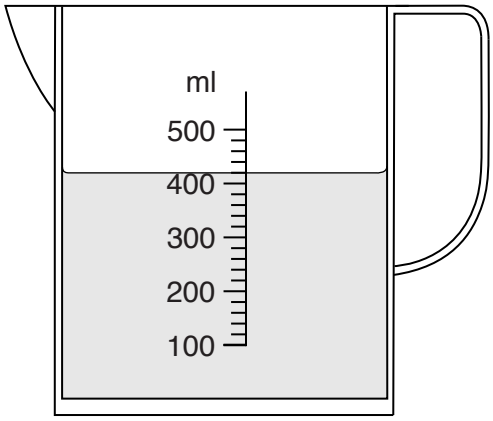
(d) Find the value of $6a + 3c$ when $a = 2$ and $c = -4$.

(d) ..... **[2]**

7 *In this question, use a ruler and a pair of compasses.*
Do not rub out your construction lines.

Construct an equilateral triangle with a side of length 6.5 cm. **[2]**

8 Paul has a full one-litre bottle of milk.
He uses this amount of milk for the family's breakfast.



He then uses another 100 ml for a mug of coffee.
He needs 0.75 pints of milk for a recipe.

Does he have enough milk left in the bottle for this recipe?
Show how you decide. You will need to use 1 pint = 568 ml. **[4]**

9 Three schools, Abbey, Barts and Clark, took part in a music competition.

(a) This table shows the number of students from each school who took part.

	Abbey	**Barts**	**Clark**	**Totals**
Boys	35		42	90
Girls	43	58		120
Totals	78			210

(i) Complete the table. **[2]**

(ii) For Abbey School, how many more girls than boys took part in the competition?

(a)(ii) ..... **[1]**

(b) Students from Abbey School were asked to complete a questionnaire.
Here is one of the questions.

What type of musical instrument do you play?

Keyboards ☐ Strings ☐ Wind ☐

Write down one improvement for the response categories to this question.

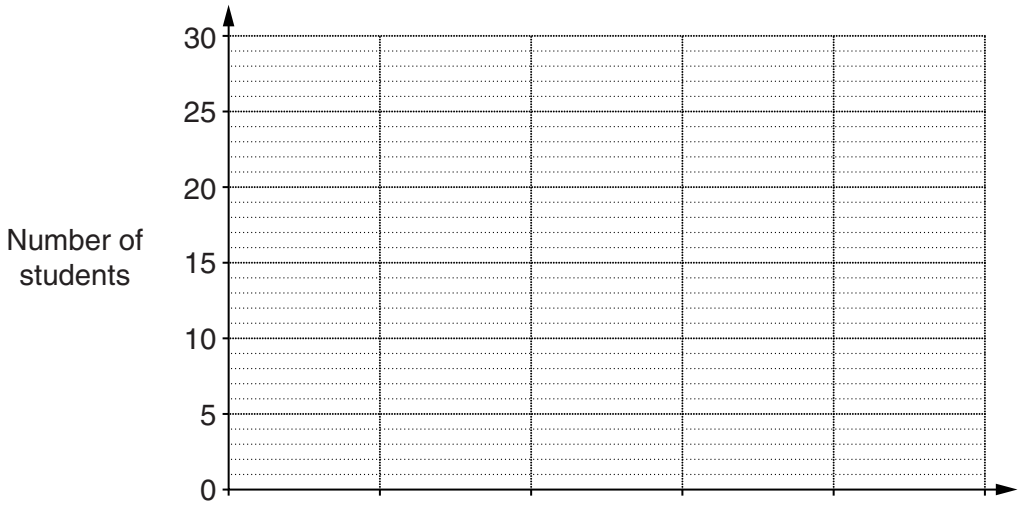
.....

..... **[1]**

(c) Here are the ways in which the students from Barts School took part in the competition.

	Number of students
Singing only	25
Playing instrument only	18
Technical support only	11
More than one way	17

Draw a bar chart to represent this information.



[3]

10 The students in two maths groups were each asked to solve a puzzle.

(a) This stem and leaf diagram represents the times taken by the 30 members of group 7S.

2	4	5	6	6	7		
3	0	2	6	9			
4	1	1	3	5	6	7	9
5	0	1	2	2	4	8	
6	3	5	7	7			
7	1	6	9				
8	3						

Key: 7 | 2 represents 72 seconds

(i) Find the range of the times taken by group 7S.

(a)(i) ..... seconds **[2]**

(ii) Find the median time taken by group 7S.

(ii) ..... seconds **[2]**

(b) This table summarises the times taken by the 30 members of group 7P.

Time (t seconds)	Frequency
$20 \leqslant t < 30$	3
$30 \leqslant t < 40$	7
$40 \leqslant t < 50$	13
$50 \leqslant t < 60$	6
$60 \leqslant t < 70$	1

Calculate an estimate of the mean time taken by group 7P.

(b) ..... seconds **[4]**

11 Caroline and Helen share a job in the ratio 3 : 2.

(a) Caroline works for 24 hours a week.

Calculate how many hours a week Helen works.

(a) ..... hours **[2]**

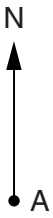
(b) The annual pay for the whole job is £26 000.

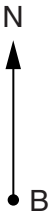
Work out the annual pay for Caroline and for Helen.

(b) Caroline £ .....

Helen £ ..... **[3]**

12 This scale drawing shows the positions of two ports, Aylton (A) and Borsey (B).





Scale: 1 cm represents 5 km

(a) Find the actual distance of Aylton from Borsey.

(a) ..... km **[2]**

(b) Find the bearing of Aylton from Borsey.

(b) .....° **[1]**

(c) A boat sails from Aylton on a bearing of 213° for 16 km to C.

On the scale drawing, construct the position of C. **[2]**

END OF QUESTION PAPER

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