

Tuesday 11 June 2013 – Morning

GCSE MATHEMATICS A

A502/01 Unit B (Foundation Tier)

Candidates answer on the Question Paper.

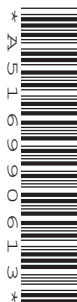
OCR supplied materials:

None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour



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.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

WARNING

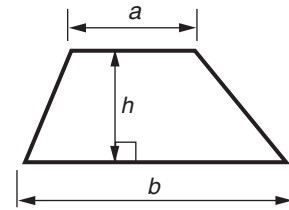


No calculator can be
used for this paper

This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

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



Volume of prism = (area of cross-section) $\times$ length



PLEASE DO NOT WRITE ON THIS PAGE

- 1 (a) Work out.

$$142 + 65 - 96$$

(a) _____ [2]

- (b) Work out.

$$\frac{1}{5} \text{ of } 25$$

(b) _____ [1]

- (c) Work out.

$$10\% \text{ of } \text{£}710$$

(c) £ _____ [1]

- (d) Write $\frac{25}{40}$ as a fraction in its simplest form.

(d) _____ [1]

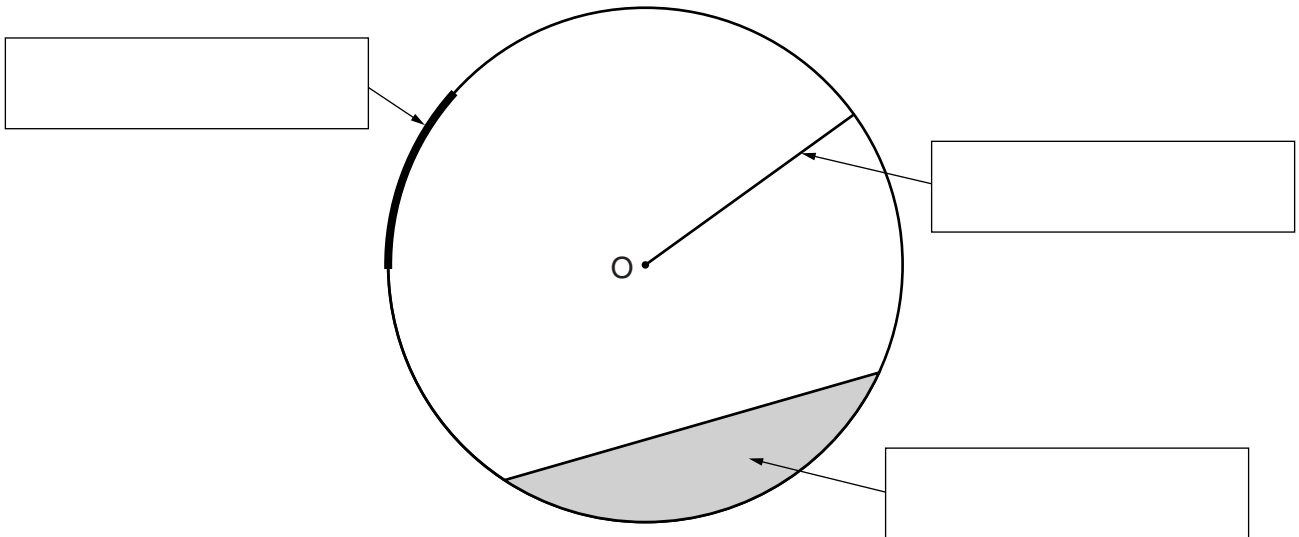
- (e) Complete this table.
The first row has been done for you.

Fraction		Decimal		Percentage
$\frac{1}{4}$	=	0.25	=	25%
$\frac{2}{5}$	=		=	40%
	=	0.07	=	7%

[2]

- 2 This circle has centre O.
Complete the three labels for parts of the circle.
Use words from this list.

Diameter	Radius	Circumference
Semicircle	Segment	Arc



[3]

3 (a) Complete Jenny's shopping bill.

Item	Amount	Cost
Crisps at £1.45 a packet	4 packets	£ _____
Bottles of Cola at £2.30 a bottle	3 bottles	£ _____
Boxes of cakes at £2.05 for 2 boxes	_____ boxes	£ 6.15
Total cost		£ _____

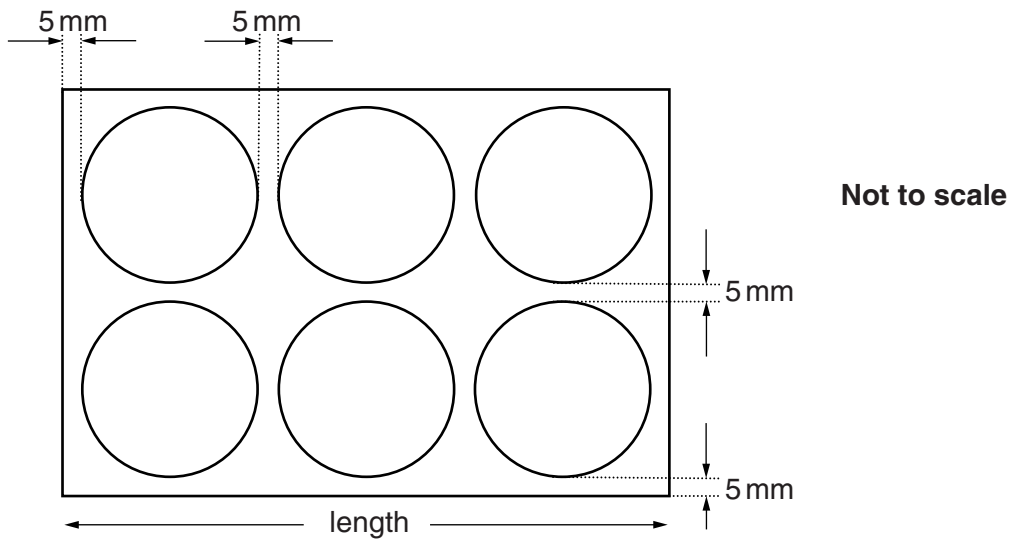
[4]

(b) Jenny pays for her shopping with a £20 note.

Work out how much change Jenny should receive.

(b) £ _____ [1]

- 4 Dionne cuts six identical circles from a rectangle of fabric to make mats.



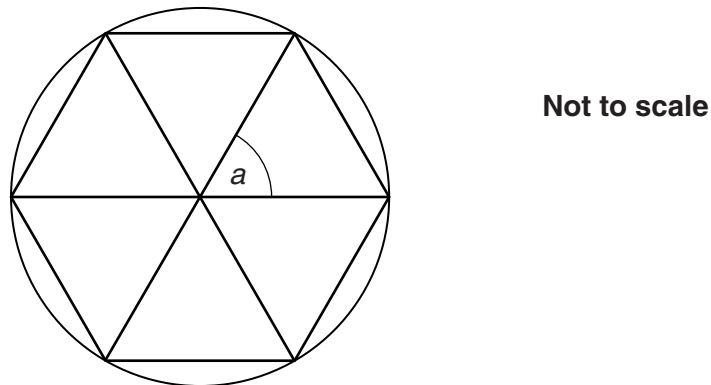
Each circle has a diameter of 10 cm.

She leaves 5 mm between each circle and 5 mm from each circle to the edge of the fabric.

- (a) What is the length of the rectangle?
Give your answer in centimetres.

(a) _____ cm [3]

- (b) Dionne draws this regular pattern onto each circular mat.



- (i)* Without measuring, explain fully why angle a is 60° .

[3]

- (ii) The diameter of a mat is 10 cm.

Calculate the **total** length of the lines that Dionne draws on one mat.

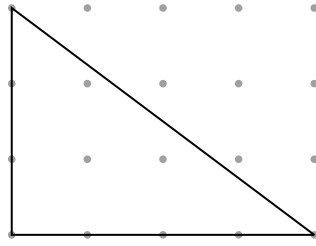
(b)(ii) _____ cm [3]

- (c) It costs Dionne £1.60 to make each mat.
She adds 50% of the cost for her profit.

Calculate the price at which Dionne sells each mat.

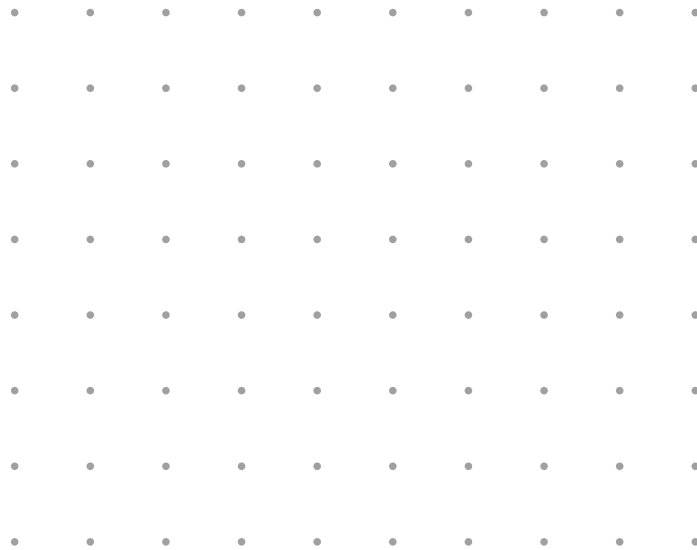
(c) £ _____ [2]

- 5 This right-angled triangle is drawn on a one-centimetre square dotted grid.



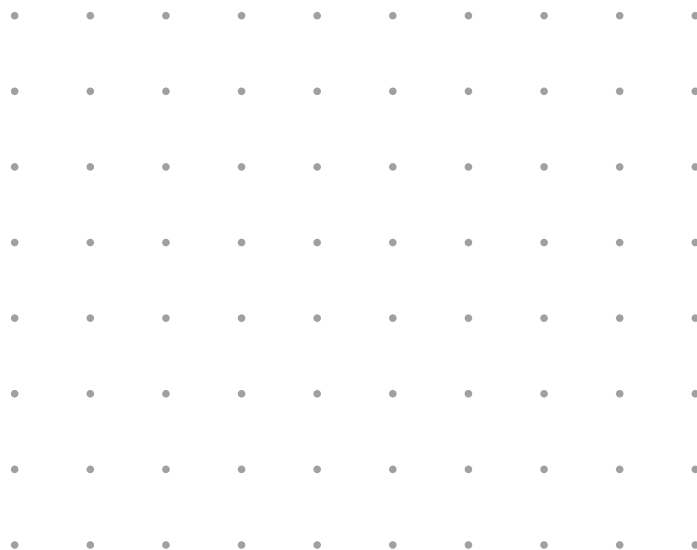
Two of these triangles are joined side to side to make a logo.
The vertices of the logo must be on dots of the grid.

- (a) On this grid, draw a logo made from two of these triangles so that it has only **one** line of symmetry.
Draw and label the line of symmetry.



[2]

- (b) On the grid below, draw a logo made from two of these triangles so that it has rotation symmetry order **two**.



[2]

- 6* The *SkyHigh* balloon company has one hot air balloon.
Here is some information about their costs.

Monthly loan repayment	£790
Fuel and other costs for one flight	£160
Pilot's wage for one year	£24 000

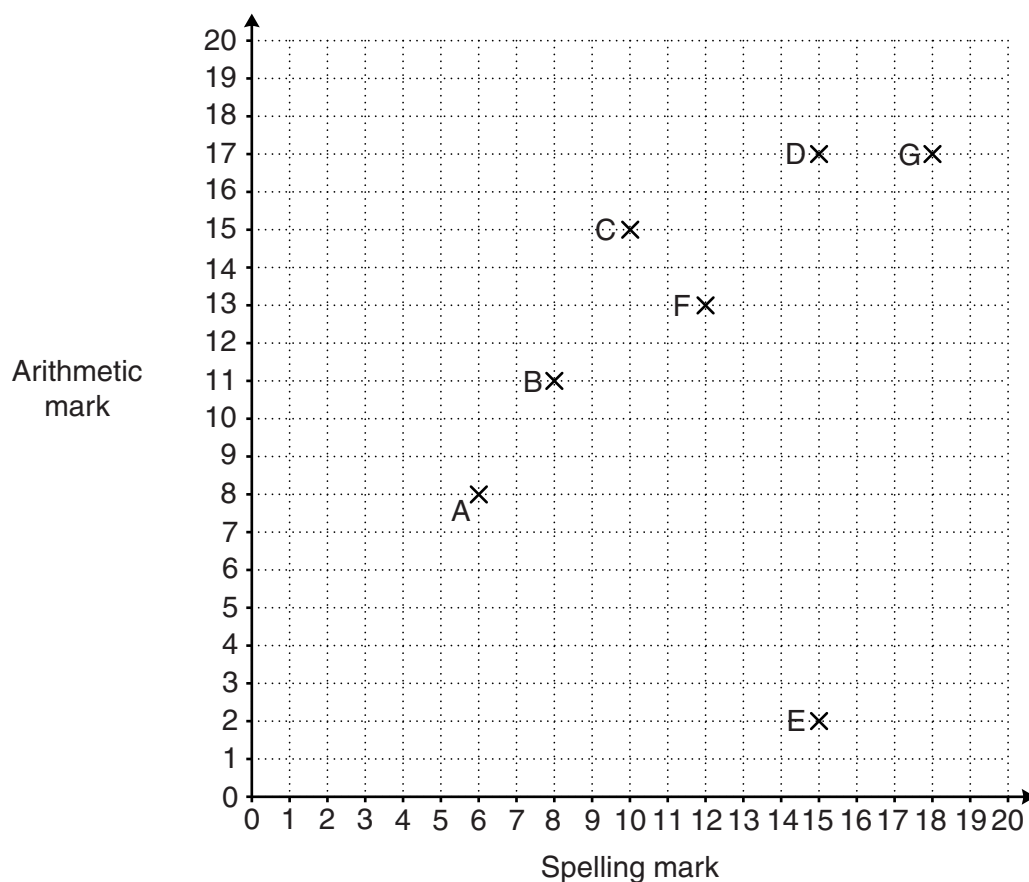
The balloon can carry up to 5 people **including the pilot**.
The price of a ticket for one person is £140.

Calculate the smallest number of flights the balloon must make in a month for *SkyHigh* to make a profit.

Write down any assumptions that you make.

[5]

- 7 Ten primary school children each did a spelling test and an arithmetic test. Each test was marked out of 20. The marks of seven of the children (A to G) are shown on the scatter graph.



- (a) The marks of the other three children are given below.

Child	Spelling mark	Arithmetic mark
H	11	14
J	18	19
K	10	12

Plot and label these values on the scatter graph.

[2]

- (b) (i) Describe the type of correlation shown in your diagram.

(b)(i) _____ [1]

- (ii) Give a reason why it is difficult to be sure of the strength of the correlation.

_____ [1]

- (c) Suki scored exactly 50% more marks in her arithmetic test than in her spelling test.

Which letter represents Suki?

(c) _____ [1]

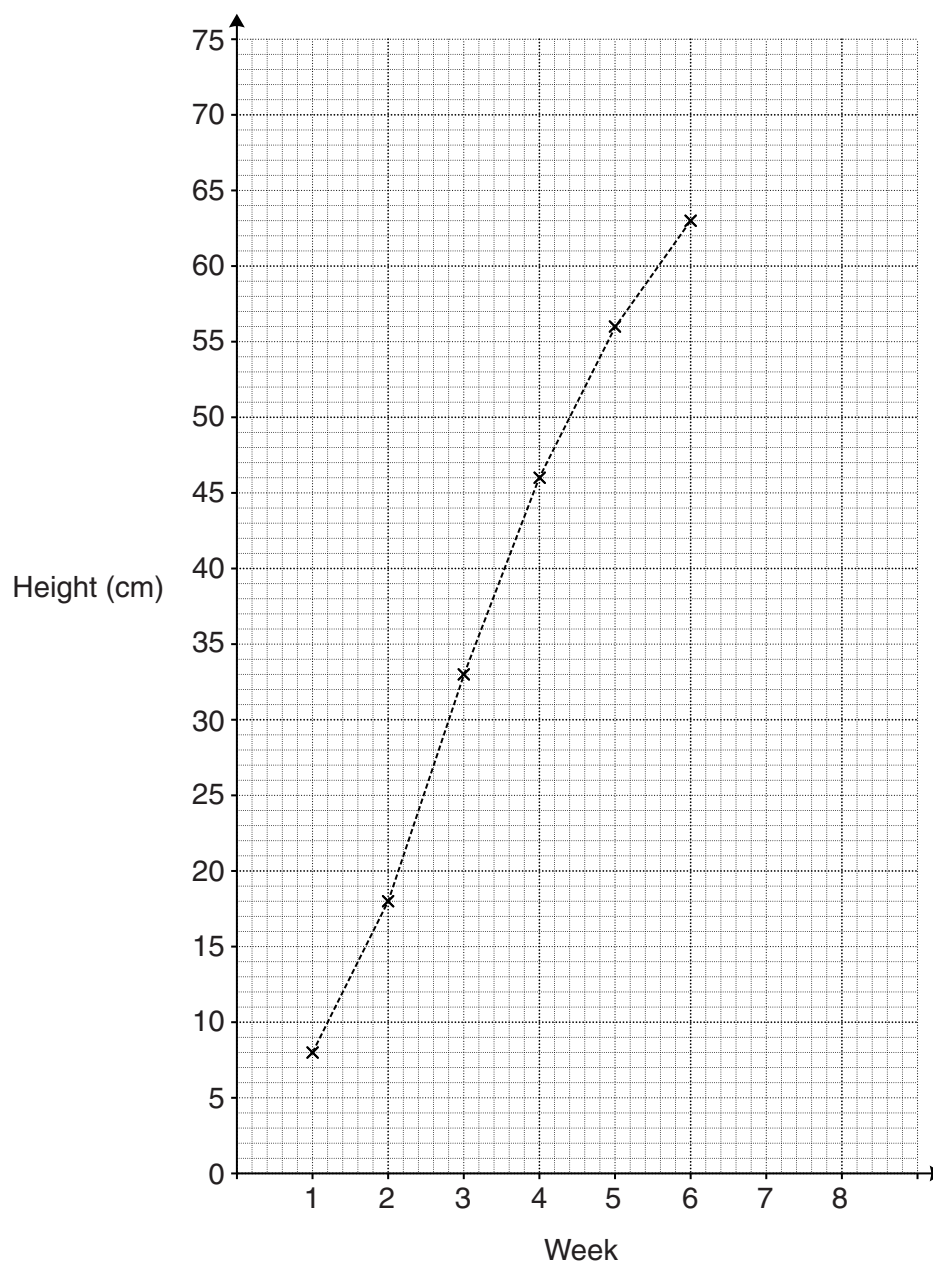
- (d) Pedro learnt his spellings but not his arithmetic.
His arithmetic score was much worse than his spelling score.

Which letter represents Pedro?

(d) _____ [1]

- 8 Niamh plants a bean.
She measures the height of the bean plant at noon every Friday for 8 weeks.
These are her results.

Week	1	2	3	4	5	6	7	8
Height (cm)	8	18	33	46	56	63	68	72



- (a) Complete the time series graph.
The first six points have been plotted for you.

[2]

(b) How much has Niamh's plant grown from week 2 to week 4?

(b) _____ cm [1]

(c) The plant grew taller during the 8 weeks.

What else does the graph show you about the way the plant grew?
Use evidence from the graph to support your answer.

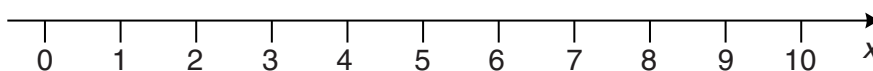
[2]

9 (a) Solve this inequality.

$$x - 1 \leq 6$$

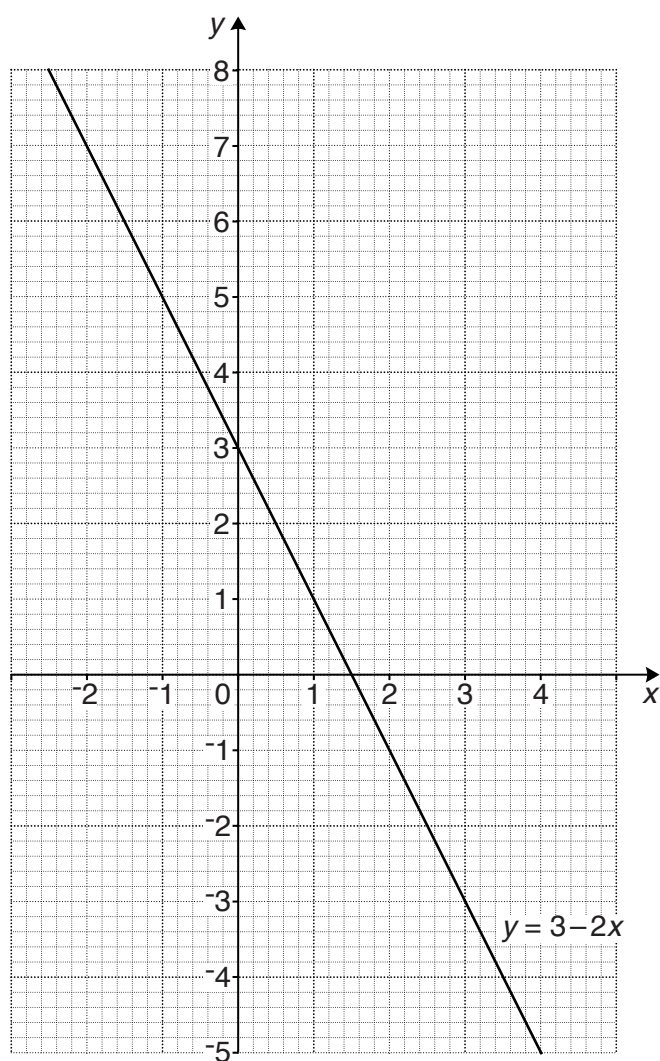
(a) _____ [1]

(b) Represent the inequality $x \geq 4$ on this number line.



[1]

10 The graph of $y = 3 - 2x$ is drawn on this grid.



(a) Write down

(i) the value of y where the graph of $y = 3 - 2x$ crosses the y -axis,

(a)(i) $y =$ _____ [1]

(ii) the gradient of $y = 3 - 2x$.

(ii) _____ [1]

- (b) (i) Complete this table of values for $y = 2x - 1$.

x	-2	-1	0	2	4
y	-5			3	

[2]

- (ii) On the grid, draw the graph of $y = 2x - 1$ for values of x from -2 to 4.

[2]

- (c) Use the graphs to solve these simultaneous equations.

$$y = 3 - 2x$$

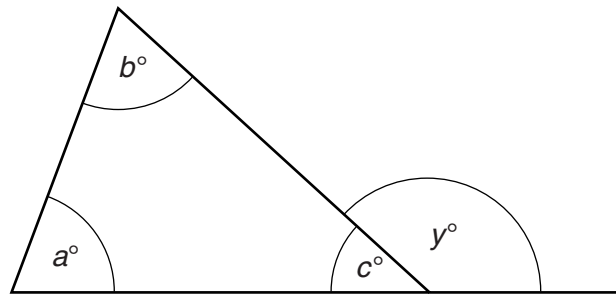
$$y = 2x - 1$$

(c) $x =$ _____

$y =$ _____ [2]

TURN OVER FOR QUESTION 11

- 11 The diagram shows a triangle with one of its sides extended.



Complete these statements to show that $y = a + b$.

$a + b + c =$ _____ because _____

Therefore $a + b = 180 - c$.

Also $y = 180 - c$ because _____

Therefore $y = a + b$.

This proves that the exterior angle of a triangle is equal to the sum of the

two _____ opposite angles.

[4]

END OF QUESTION PAPER

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