OCR
RECOGNISING ACHIEVEMENT

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Tuesday 11 June 2013 – Morning

GCSE MATHEMATICS A

A502/01 Unit B (Foundation Tier)

A516990613

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour

A502601

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

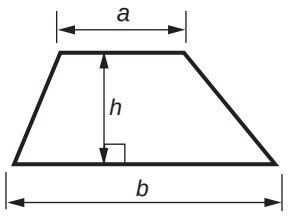
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

WARNING
No calculator can be used for this paper

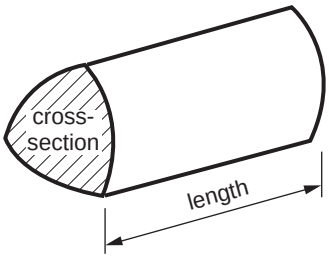
This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

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



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



PLEASE DO NOT WRITE ON THIS PAGE

1 **(a)** Work out.

142 + 65 – 96

(a) _____ **[2]**

(b) Work out.

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

(b) _____ **[1]**

(c) Work out.

10% of £710

(c) £_____ **[1]**

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

(d) _____ **[1]**

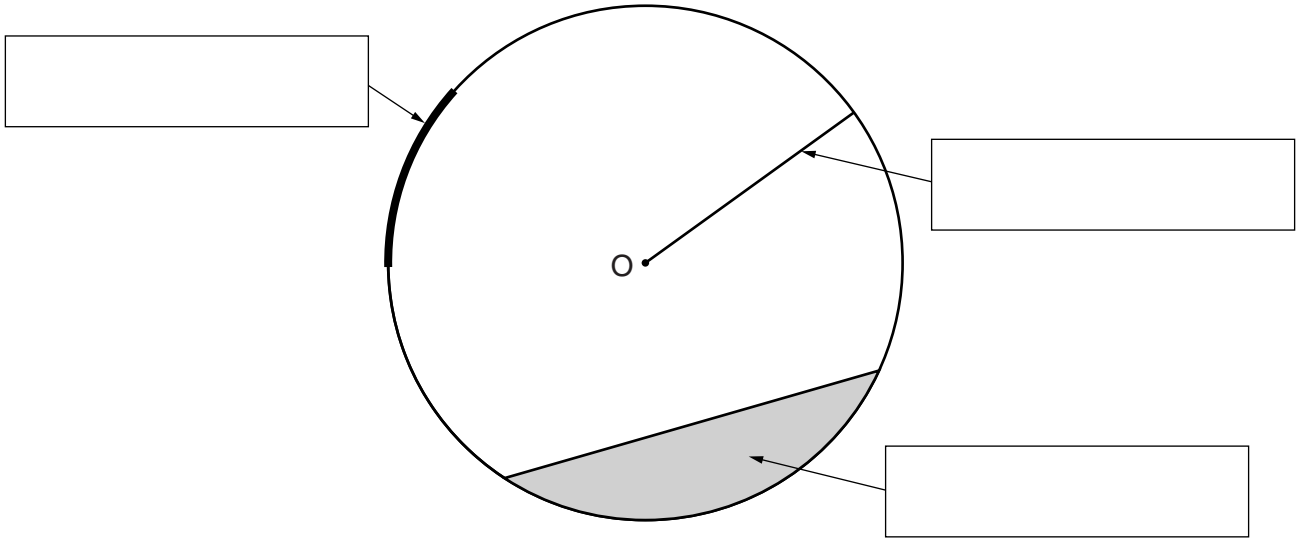
(e) Complete this table.
The first row has been done for you.

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	£ _____

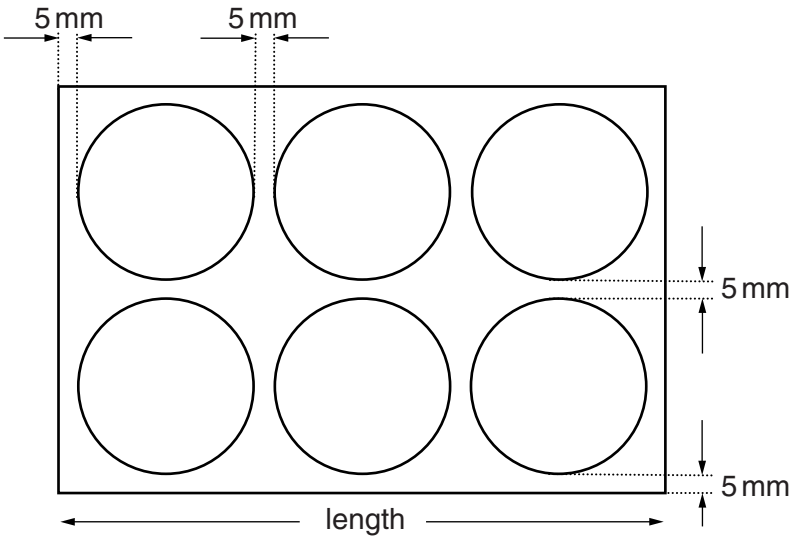
[4]

(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.



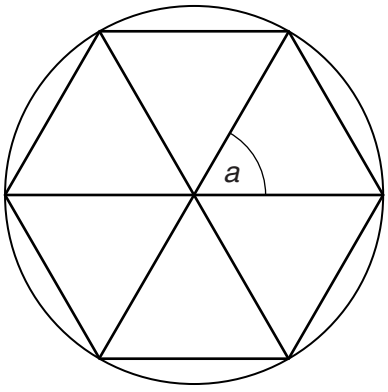
Not to scale

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.



Not to scale

(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.

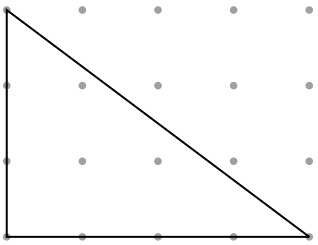
(b)(ii) _____ cm **[3]**

(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.

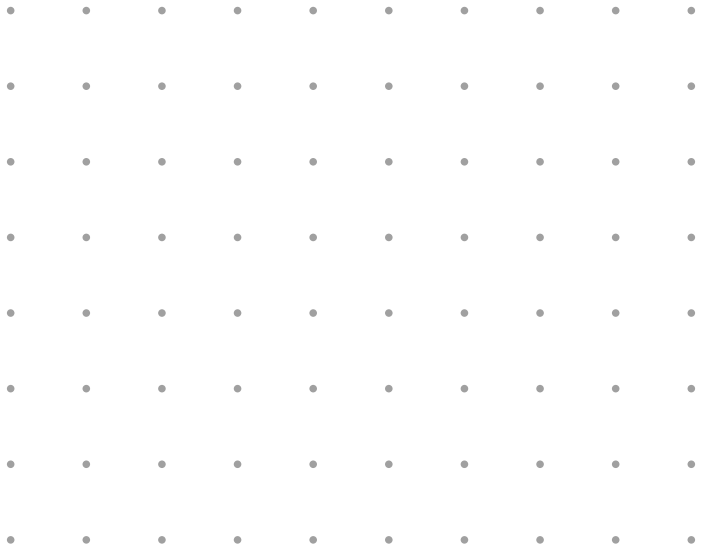
(c) £ _____ **[2]**

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



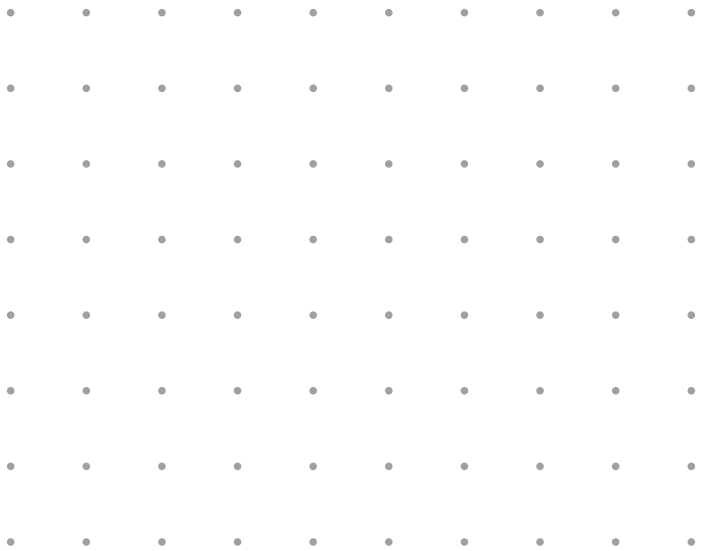
Two of these triangles are joined side to side to make a logo.
The vertices of the logo must be on dots of the grid.

(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.

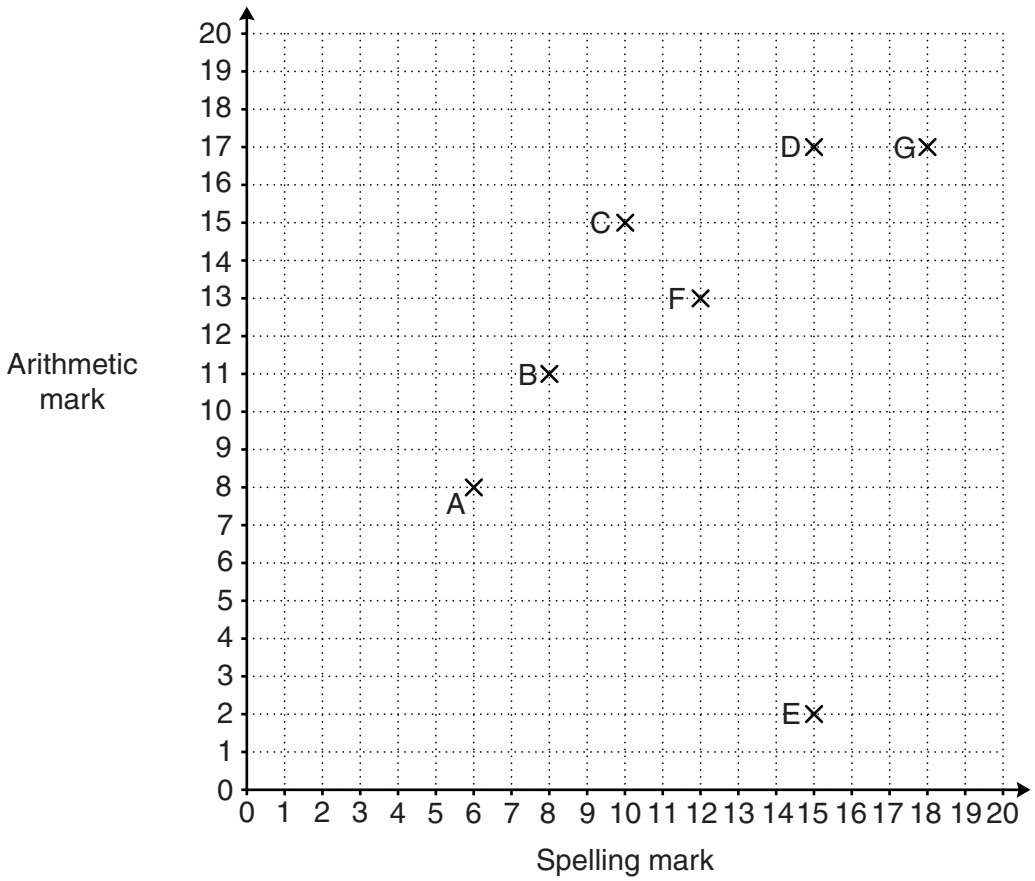
Monthly loan repayment	£790
Fuel and other costs for one flight	£160
Pilot's wage for one year	£24 000

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]**

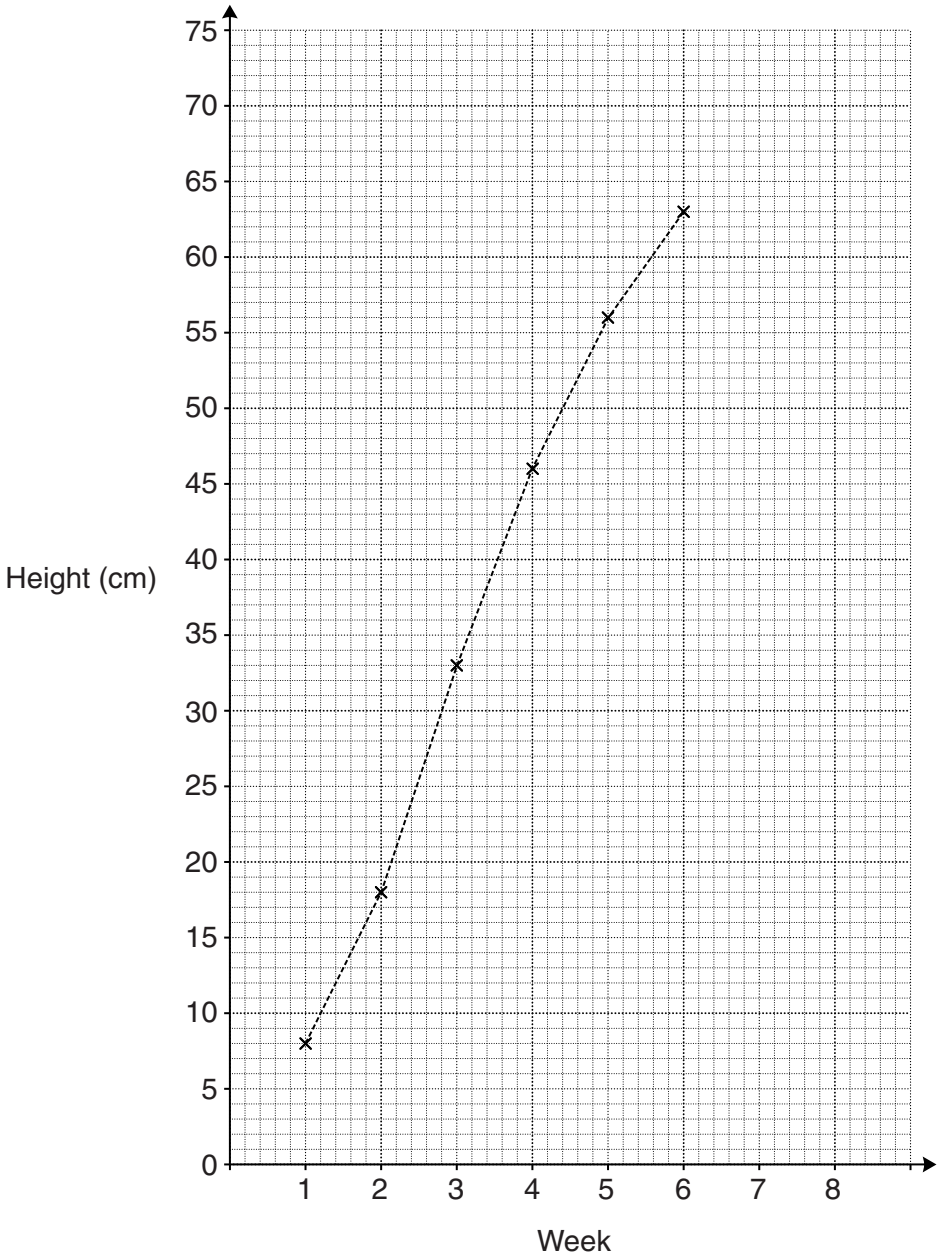
(d) Pedro learnt his spellings but not his arithmetic.
His arithmetic score was much worse than his spelling score.

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.

_____

_____

_____

_____

_____

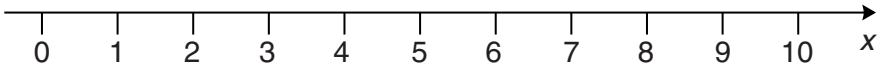
_____ **[2]**

9 **(a)** Solve this inequality.

$$x - 1 \leqslant 6$$

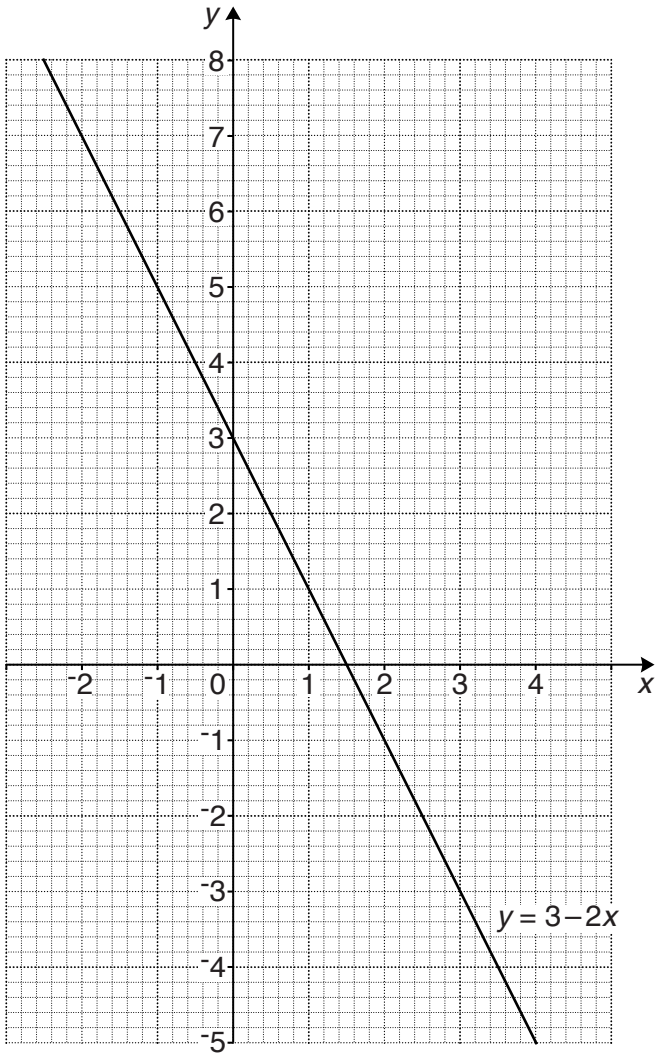
(a) _____ **[1]**

(b) Represent the inequality $x \geqslant 4$ 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.

$$y = 3 - 2x$$

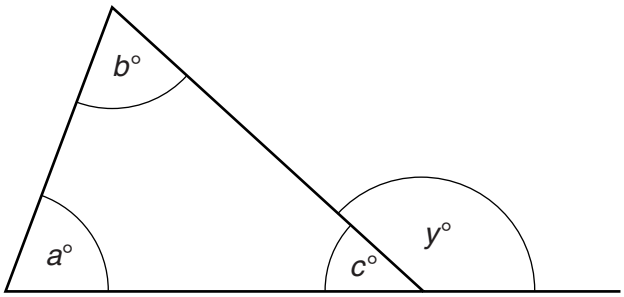
$$y = 2x - 1$$

(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