

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A502/01

MATHEMATICS A

Unit B (Foundation Tier)

TUESDAY 11 JUNE 2013: Morning

DURATION: 1 hour

plus your additional time allowance

MODIFIED ENLARGED

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Tracing paper (optional)

WARNING

No calculator can be used for this paper

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

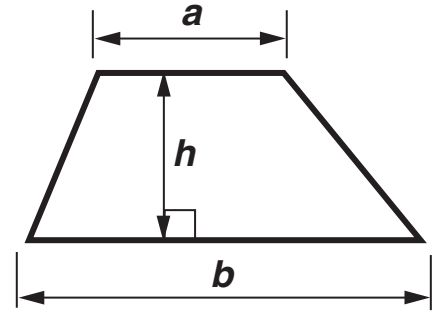
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you 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).**

INFORMATION FOR CANDIDATES

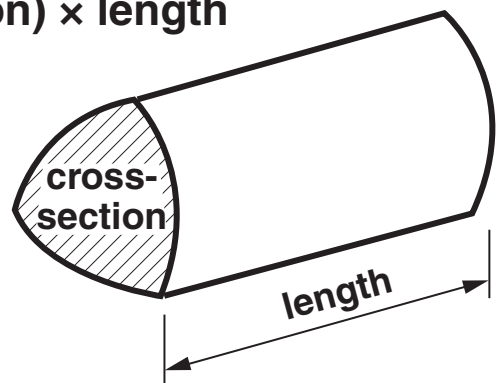
- **The number of marks is given in brackets [] at the end of each question or part question.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**
- **The total number of marks for this paper is 60.**

FORMULAE SHEET: FOUNDATION TIER

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



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



1 (a) Work out.

$$142 + 65 - 96$$

(a) _____ [2]

(b) Work out.

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

(b) _____ [1]

(c) Work out.

$$10\% \text{ of } \pounds 710$$

(c) £ _____ [1]

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

(d) _____ [1]

(e) Complete this table by filling in the two blank spaces.

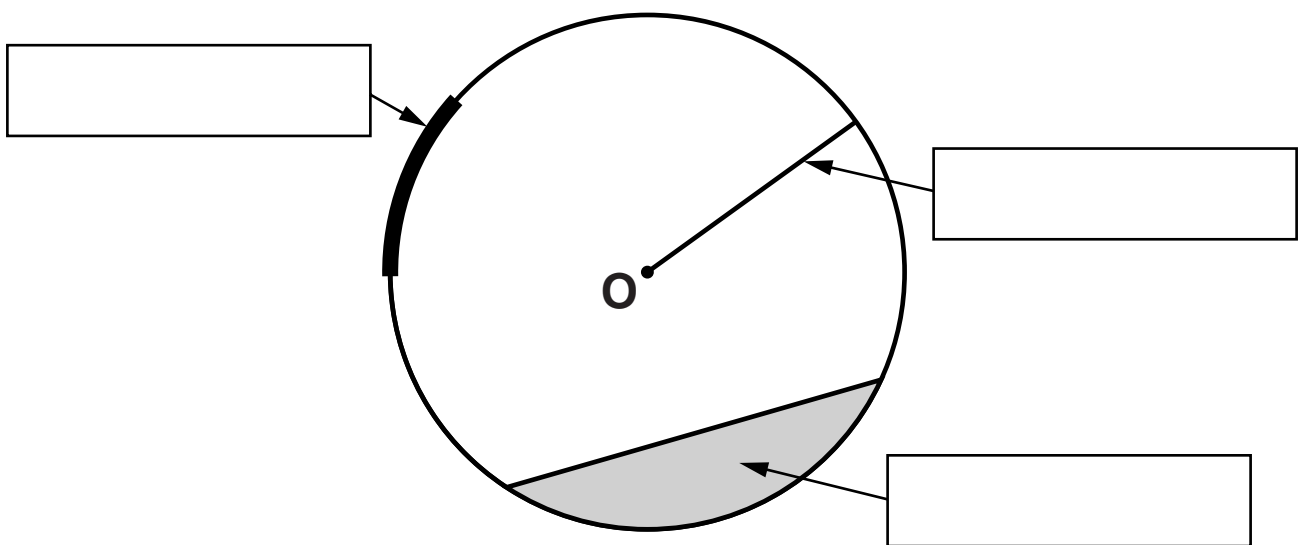
The first row has been done for you.

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

[2]

- 2 The circle below 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 below.
There are four blanks to fill in.

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		£ _____

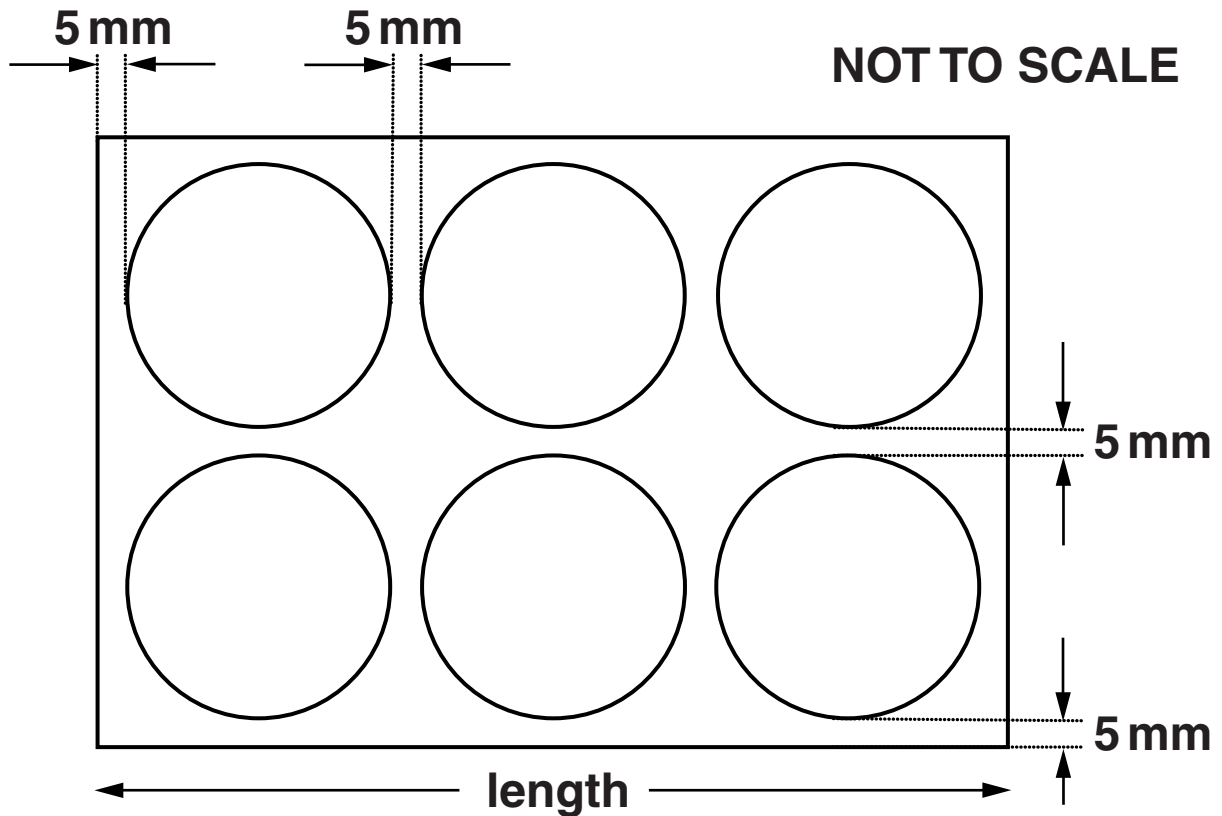
[4]

- (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.
This is shown on the following diagram.**

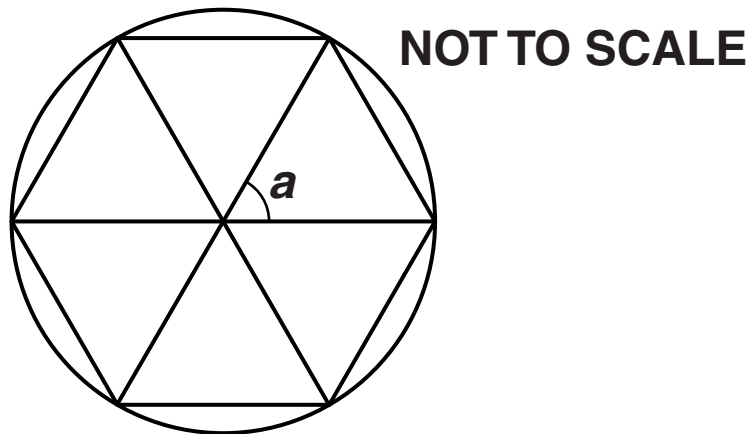


**Each circle has a diameter of 10 cm.
She leaves 5 mm between each circle and 5 mm from each circle to the edge of the fabric.**

- (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.**

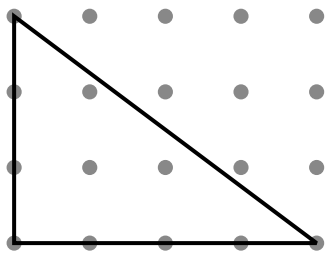
Calculate the price at which Dionne sells each mat.

(c) £ _____ [2]

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TURN OVER FOR QUESTION 5

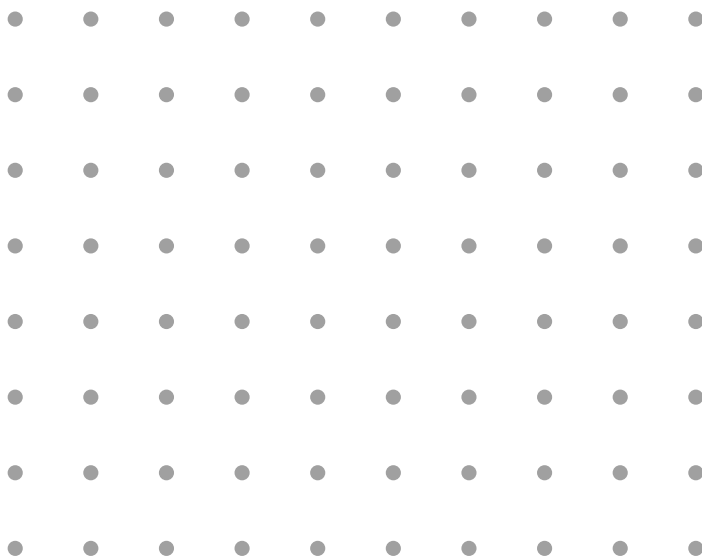
- 5 This right-angled triangle is drawn on a one-centimetre square dotted grid.**



TWO of these triangles are joined side to side to make a logo.

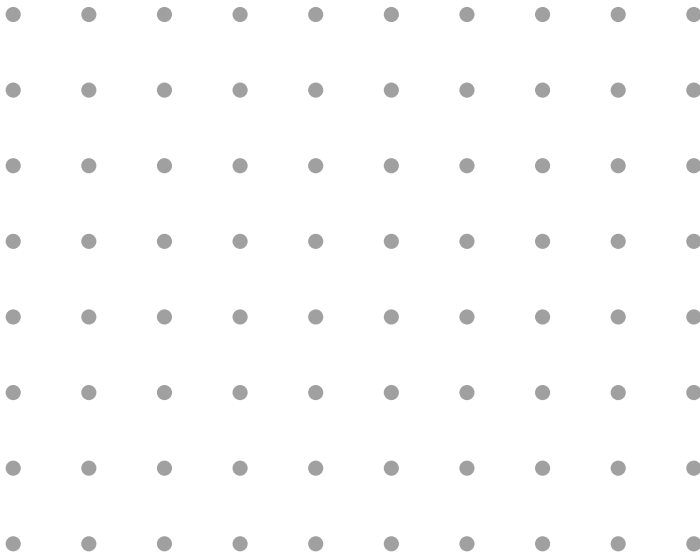
The vertices of the logo must be on dots of the grid.

- (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.

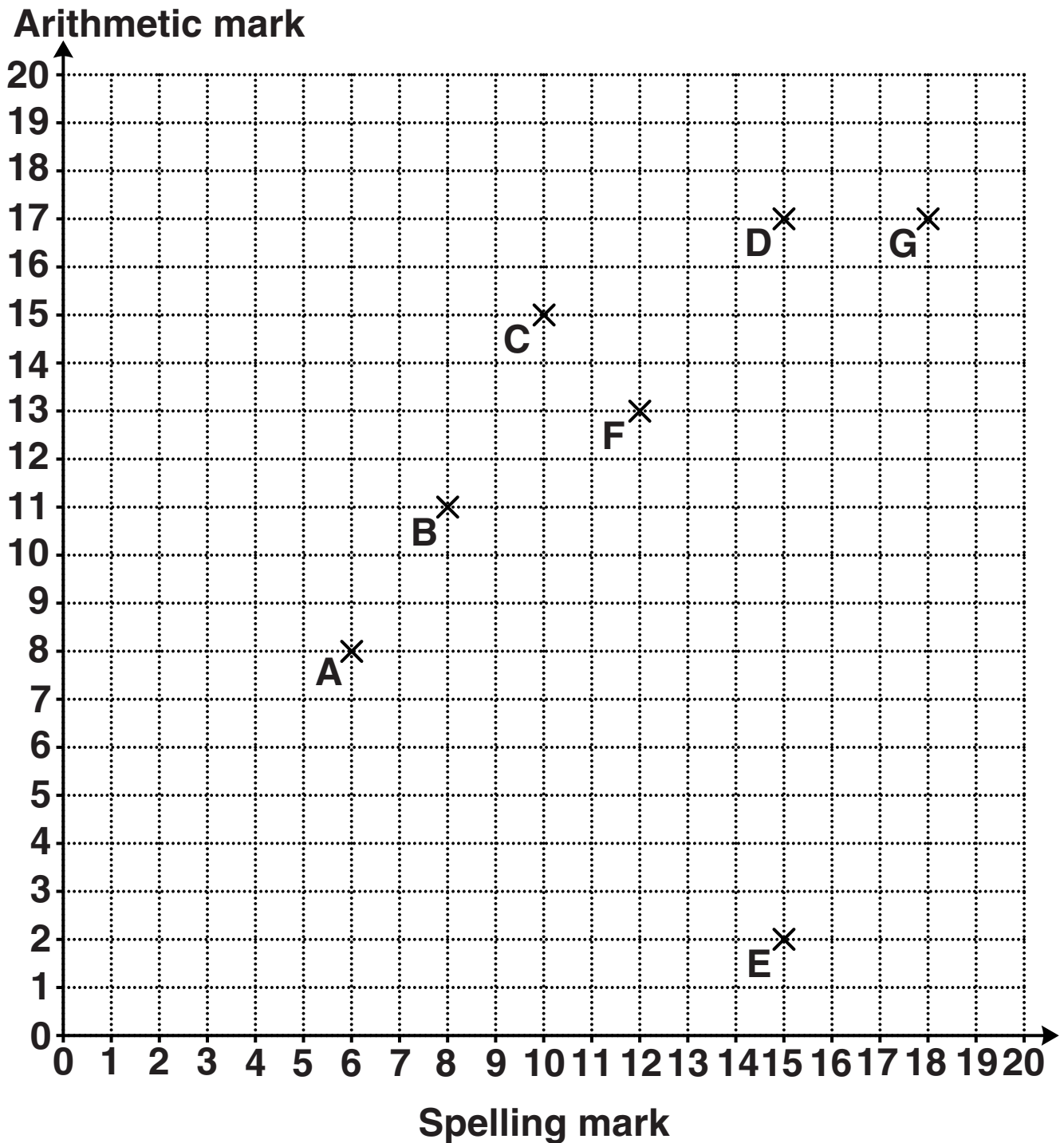
Monthly loan repayment	£790
Fuel and other costs for one flight	£160
Pilot's wage for one year	£24 000

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 following 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?

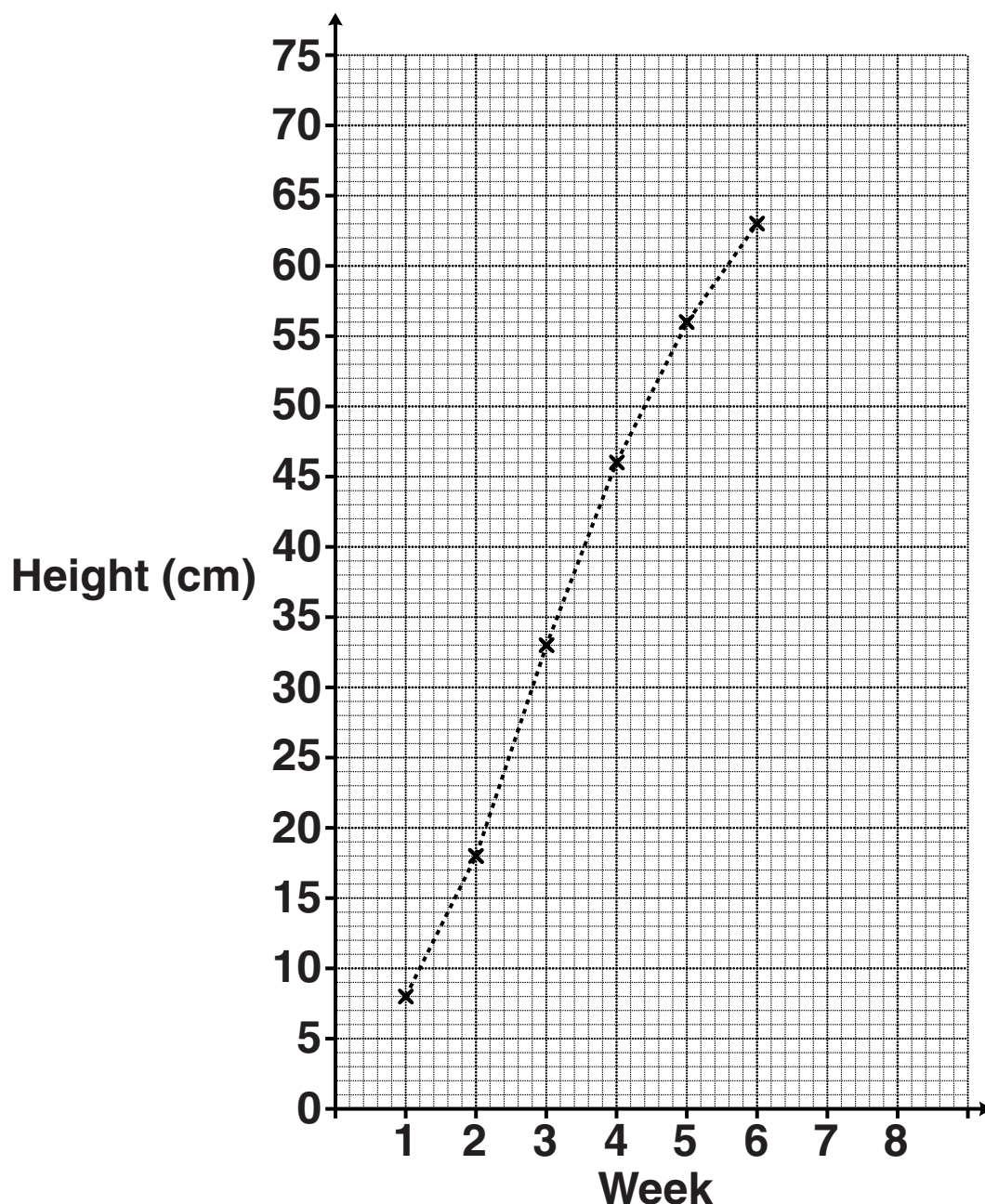
(d) _____ [1]

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TURN OVER FOR QUESTION 8

- 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 above.
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.

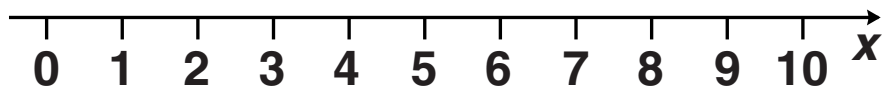
[2]

9 (a) Solve this inequality.

$$x - 1 \leq 6$$

(a) _____ **[1]**

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

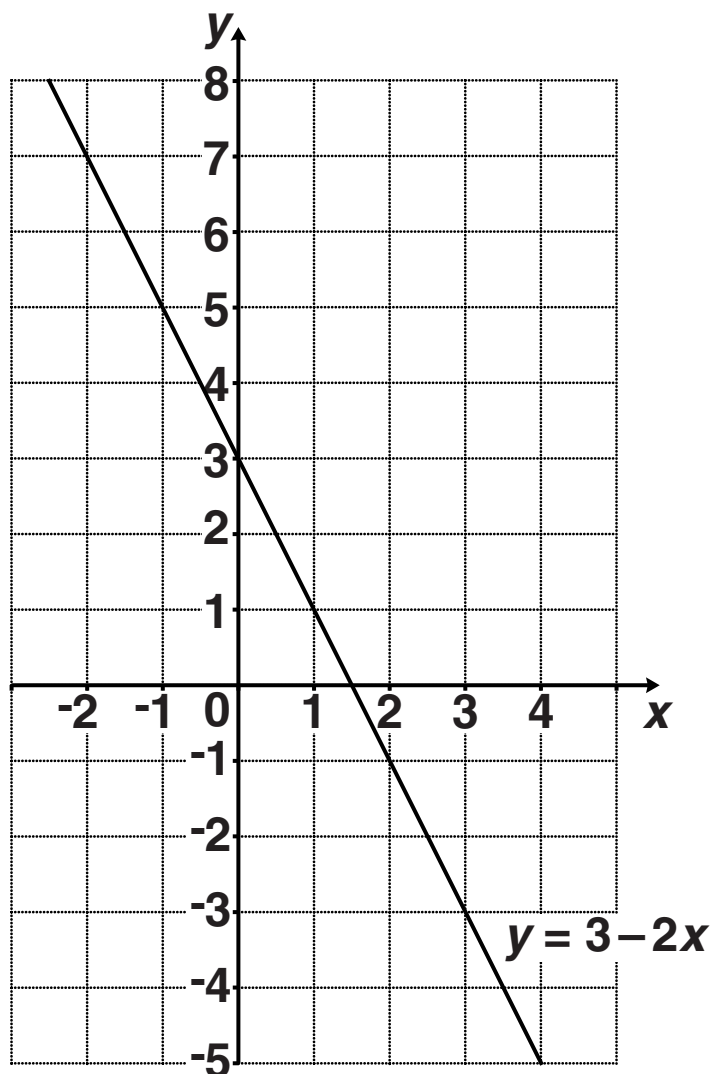


[1]

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TURN OVER FOR QUESTION 10

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 $y = 2x - 1$ by filling in the three missing values.

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.

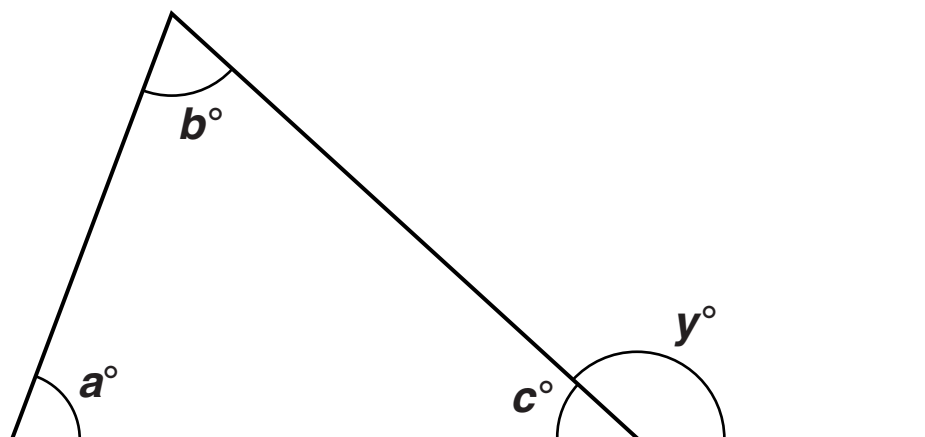
$$y = 3 - 2x$$

$$y = 2x - 1$$

$$(c) \ x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}} \quad [2]$$

- 11 The following 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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