Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

6483112968

MATHEMATICS **1112/01**

Paper 1 **October 2020**

1 hour

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You are **not** allowed to use a calculator.

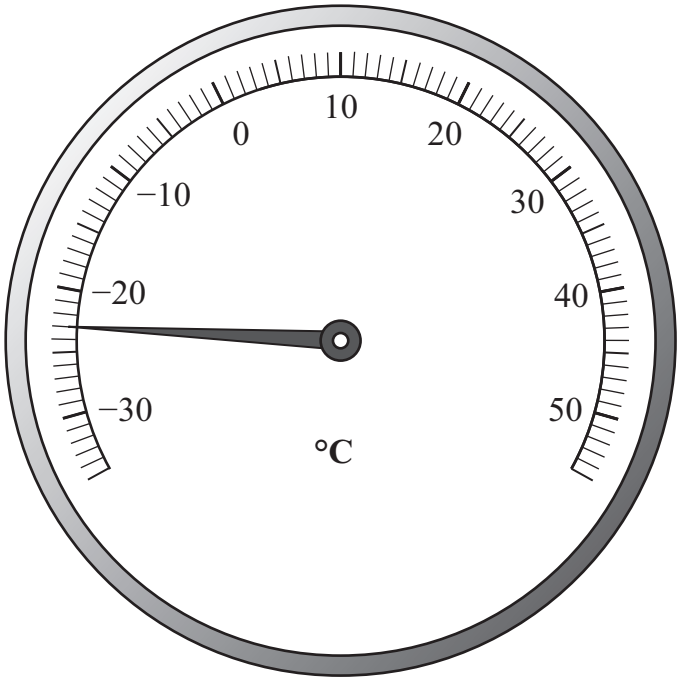
INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Blank pages are indicated.

[Turn over

1 Write down the temperature shown on this scale.

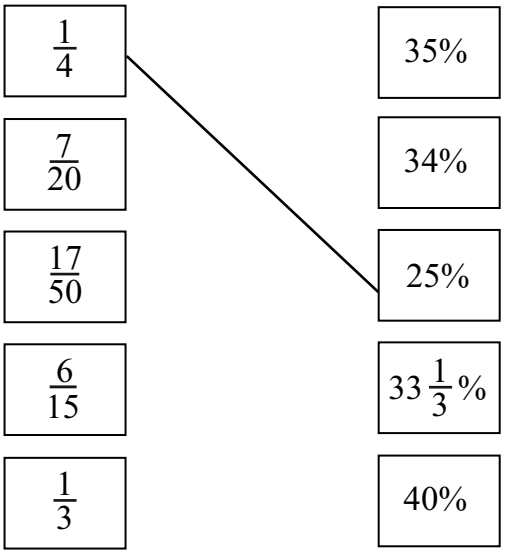


..... °C [1]

Mark Scheme:

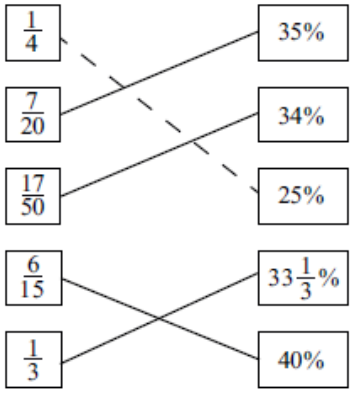
	–23 (°C)	1	

2 Draw a line to match each fraction to its percentage equivalent.
The first one has been done for you.

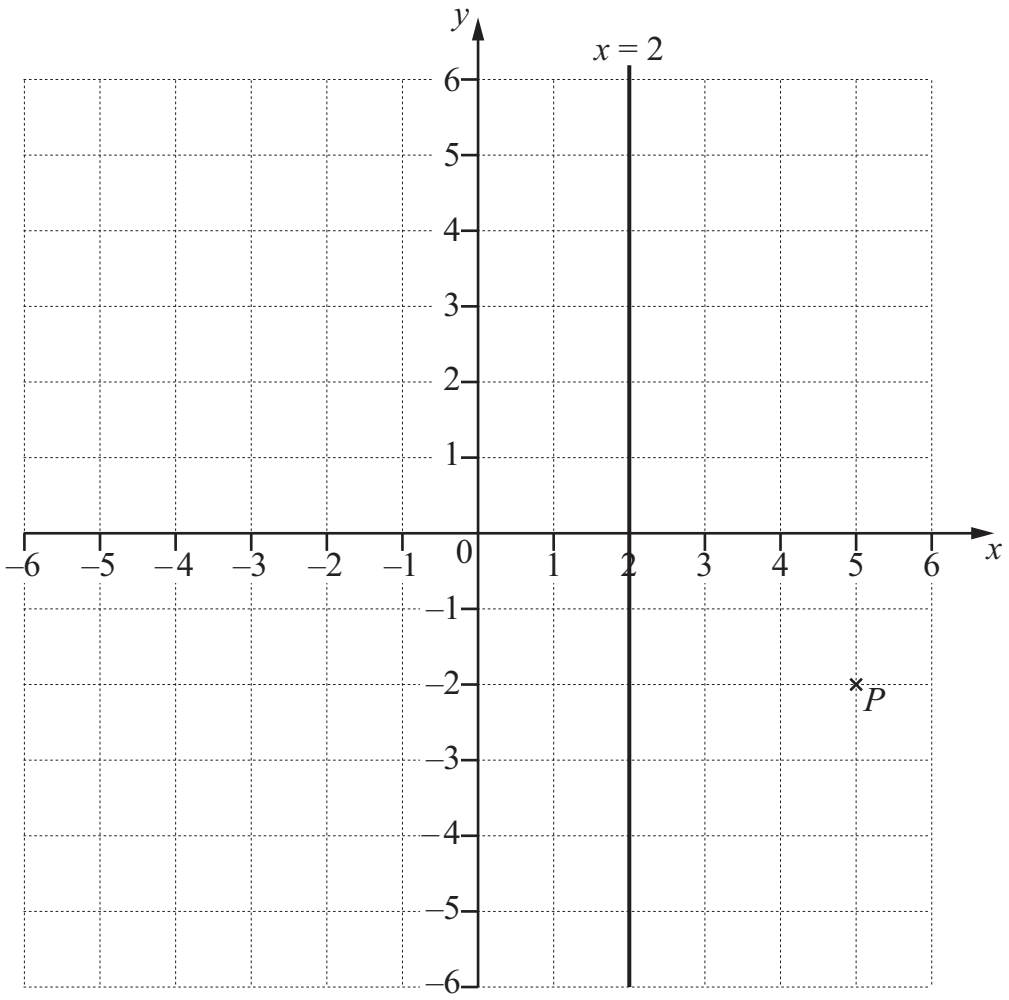


[2]

Mark Scheme:

		2	
	2 or 3 correct	B1	

3



Q is the reflection of P in the line $x = 2$

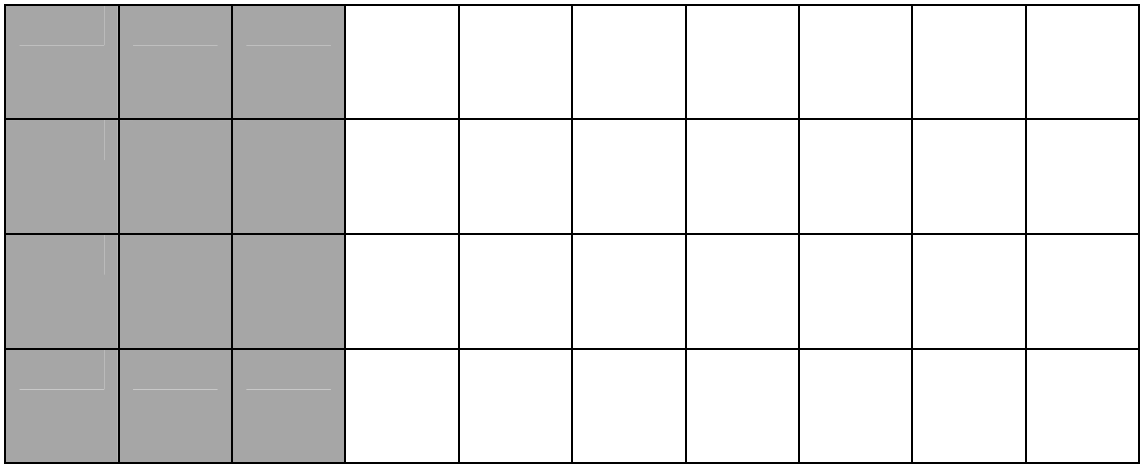
Work out the coordinates of Q.

(..... , ...) [1]

Mark Scheme:

	(–1, –2)	1	Both correct for the mark.

4 Here is a shape that has been divided into equal parts.



(a) Write down the fraction of the shape that is shaded.
Give your answer in its simplest form.

..... [1]

(b) Find the percentage of the shape that is **unshaded**.

..... % [1]

Mark Scheme:

(a)	$\frac{3}{10}$ cao	1	Do not accept equivalent decimals or percentages.
(b)	70(%) cao	1	Do not accept equivalent decimals or fractions.

5 Choose from these units to give the most appropriate unit of measurement for each item.

g kg m *l* m*l* m^2 cm^2

The area of a classroom floor. .....

The mass of a child. .....

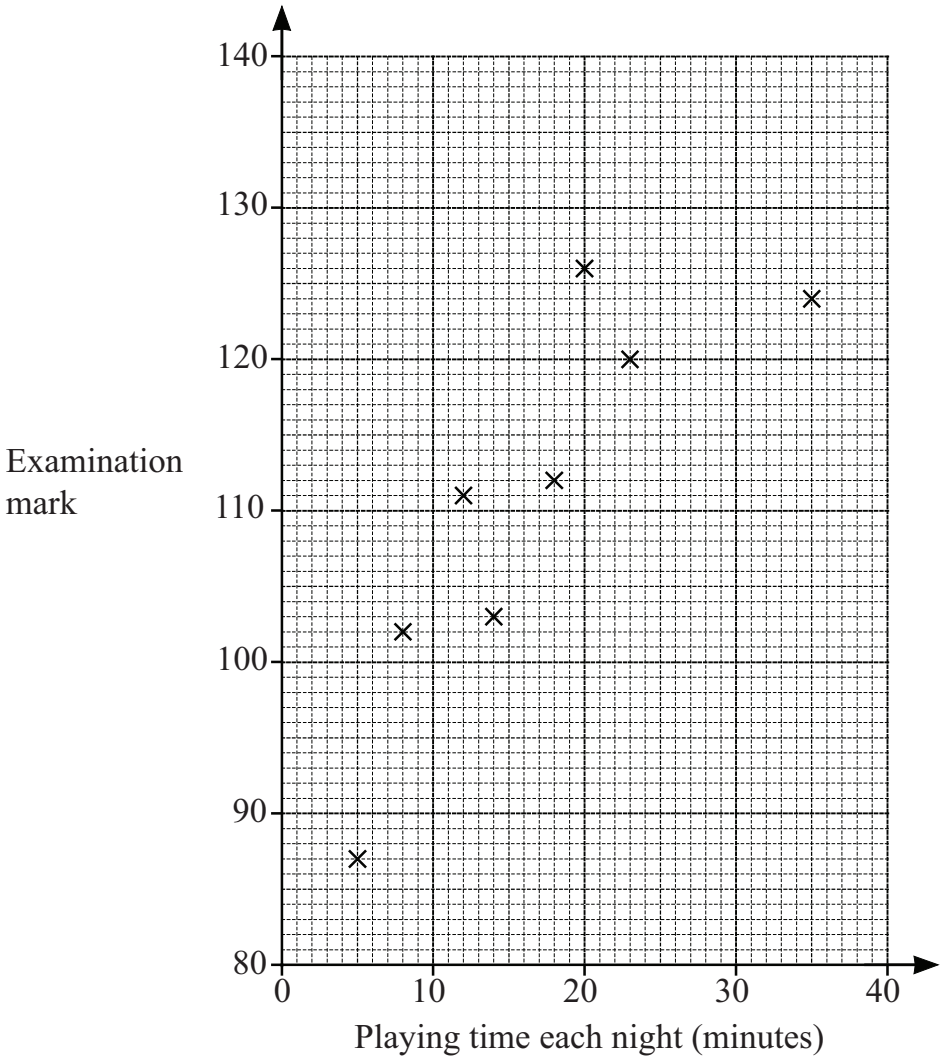
The amount of water in a swimming pool. ..... [1]

Mark Scheme:

	m^2 kg *t*	1	

6 Yuri is a piano teacher.
He collects the examination marks of his students.
He asks each of them how many minutes they play their piano for each night.

The scatter diagram shows some of his data.



(a) The playing times and examination marks of 2 more students are shown in the table.

Playing time each night (minutes)	Examination mark
12	106
30	125

Plot these values on the scatter diagram.

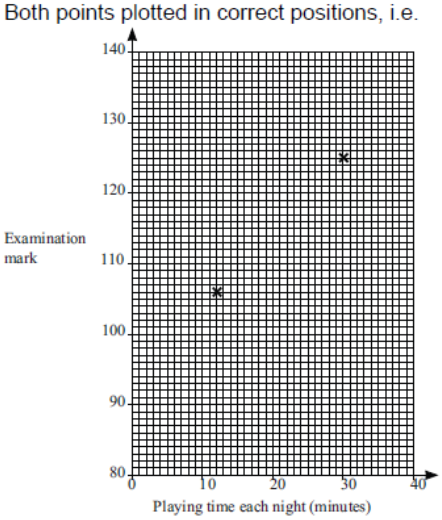
[1]

(b) Describe the relationship between playing time and examination mark.

.....

[1]

Mark Scheme:

(a)	Both points plotted in correct positions, i.e.  	**1**	error = 0 marks, e.g. extra point plotted
(b)	A response that indicates that there is a positive correlation between the variables, e.g. • positive correlation • students who play longer score higher marks	**1**	Accept positive relationship. Do **not** accept 'positive' on its own.

7 Write $\frac{43}{7}$ as a mixed number.

..... [1]

Mark Scheme:

	$6\frac{1}{7}$	1	

8 Angelique is n years old.

Jamila says,

'To get my age, start with Angelique's age, add one and then double.'

Write an expression, in terms of n, for Jamila's age.

..... [1]

Mark Scheme:

	$2(n+1)$	**1**	Accept equivalent expressions e.g. $2n+2$, (n+1) x 2 Do **not** accept formulae or equations

9 Use numbers from the list to complete the sentences.

2 9 14

You may use a number more than once.

The square numbers are ..... and .....

The factors of 18 are ..... and .....

The multiples of 4 are ..... and .....

[3]

Mark Scheme:

	(square numbers are) 9 **and** 36 and (factors of 18 are) 2 **and** 9 and (multiples of 4 are) 20 **and** 36	**3**	Accept reversed in each line.
	(square numbers are) 9 **and** 36	**B1**	
	(factors of 18 are) 2 **and** 9	**B1**	
	(multiples of 4 are) 20 **and** 36	**B1**	

10 Complete each statement with the correct power of 10 from the box.
The first one has been done for you.

10^3		10^4
10^1	10^2	10^8
10^6		10^5

10×10 is the same as .....10^2.....

10 000 is the same as .....

One million is the same as .....

$1000 \div 0.01$ is the same as .....

[2]

Mark Scheme:

	(10^2) 10^4 10^6 10^5	**2**	
	2 correct answers	**B1**	

11 Here is a calculation $48 \times 23 = 1104$

Use this calculation to work out the following.

(a) 48×24

..... [1]

(b) 4.8×0.23

..... [1]

(c) $1104 \div 2.3$

..... [1]

Mark Scheme:

(a)	1152	1	
(b)	1.104	1	
(c)	480	1	

12 Simplify.

$f \times f \times f \times f \times f$

.....

$3 \times g \times g \times 2 \times g$

.....

[2]

Mark Scheme:

	f^5 **and** $6g^3$	**2**	
	f^5 **or** $6g^3$	**B1**	

13 Draw a ring around **all** the statements that are examples of discrete data.

mark out of 10 on a test

time taken to run a marathon

mass of a bag of oranges

average speed of a journey

number of books sold

[1]

Mark Scheme:

	mark out of 10 on a test time taken to run a marathon mass of a bag of oranges average speed of a journey number of books sold	1	Accept any clear indication of the two correct responses selected.

14 The thickness of a pile of paper is 24 mm.
Each sheet is the same and has a thickness of $\frac{2}{11}$ mm.

Find the number of sheets of paper in the pile.

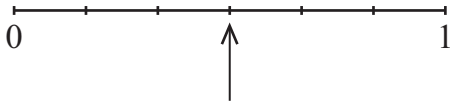
..... [2]

Mark Scheme:

	132	**2**	
	$24 \div \frac{2}{11}$ or better	**M1**	e.g. $\frac{24}{1} \div \frac{2}{11}$, $\frac{264}{11} \div \frac{2}{11}$, $24 \times \frac{11}{2}$, $\frac{264}{2}$

15 Mike throws a fair six-sided dice.

(a) The scale shows the probability of an event.



Tick (✓) **all** the events that could be represented by the arrow.

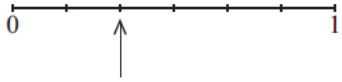
Getting an odd number on the dice.	☐
Getting the number 3 on the dice.	☐
Getting a number less than 4 on the dice.	☐

[1]

(b) Draw an arrow (↑) on the scale to show the probability of getting a 4 or a 5 on the dice.

[1]

Mark Scheme:

(a)	☑ ☐ ☑	1	Accept any unambiguous indication.
(b)		1	Accept any unambiguous indication.

16 In a traffic survey of 495 vehicles, 390 are cars.

Work out the fraction of the vehicles that are **not** cars.
Give your answer as a fraction in its simplest form.

..... [2]

Mark Scheme:

	$\frac{7}{33}$	**2**	
	$\frac{105}{495}$ **or** $\frac{21}{99}$ **or** $\frac{26}{33}$ **or** $\frac{35}{165}$	**B1**	

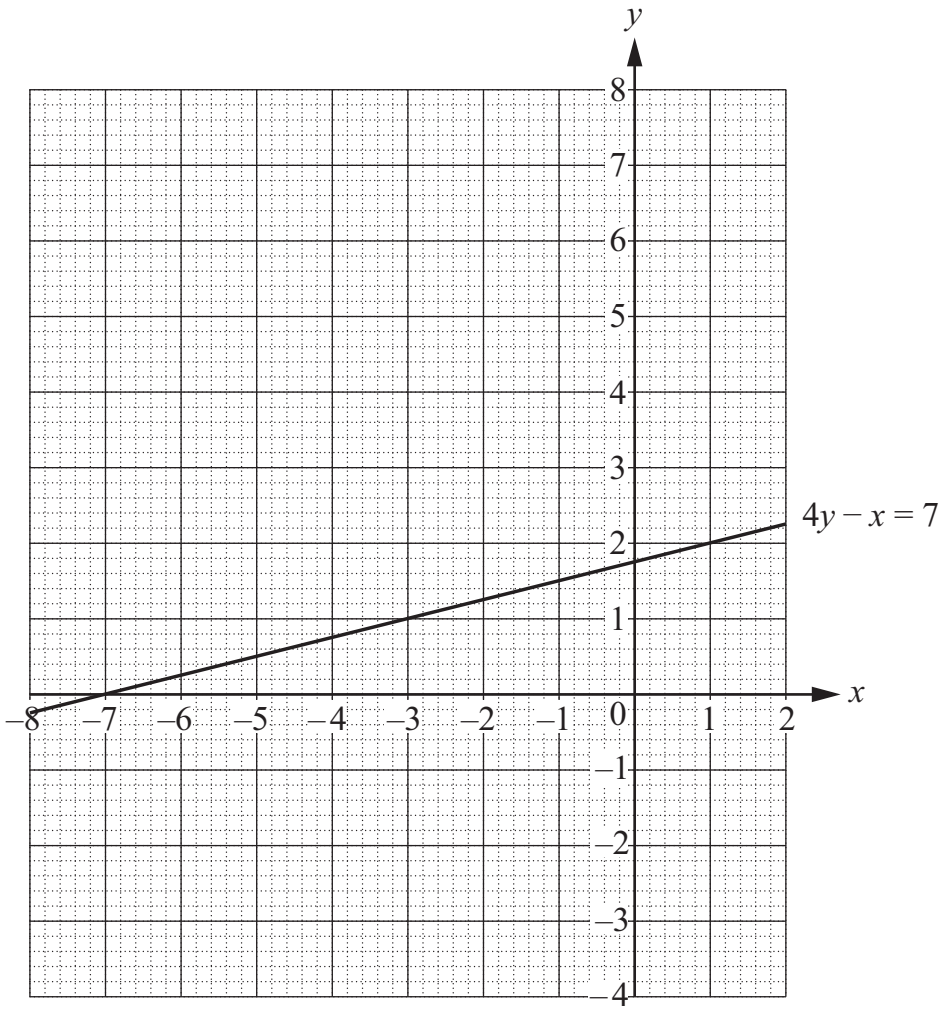
17 **(a)** Complete the table of values for $y - 2x = 6$

x	-4	-2	0
y	-2		

[1]

(b) The line $4y - x = 7$ is shown on the grid below.

Draw the line $y - 2x = 6$ on the same grid.



[2]

(c) **Use the graph** to solve the simultaneous equations

$4y - x = 7$ and $y - 2x = 6$

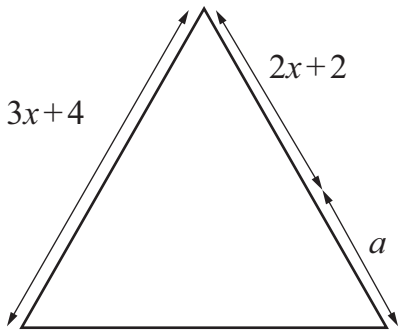
$x =$ .....

$y =$ ..... [1]

Mark Scheme:

(a)	2 **and** 6 in table.	**1**	
(b)	Line drawn between (– 4, –2) and (0, 6)	**2**	
	plotting (– 4, –2) and *their* points from **(a)** **or** for a line with gradient 2 **or** for a line crossing the y-axis at 6	**B1**	
(c)	x between –2.4 and –2.5 **and** y between 1.1 and 1.2 **or** FT x and y values from *their* point of intersection accurate within 1 small square.	**1**	Condone values in range from an algebraic solution e.g. $-2\frac{3}{7}$ and $1\frac{1}{7}$

18 The diagram shows an **equilateral** triangle.
All measurements are in cm.



NOT TO SCALE

The perimeter of the triangle is 57 cm.

Find the length of a.

..... cm [3]

Mark Scheme:

	7 (cm)	**3**	
	$3(3x + 4) = 57$ oe	**M1**	oe could be e.g. $9x + 12 = 57$ $3x + 4 = 19$ $6x + 8 = 38$ $3x = 15$ $x = 5$
	$2x + 2 + a = 3x + 4$ oe or better	**M1**	oe could be e.g. $3x + 4 – (2x + 2) = a$ $2x + 2 + a = 19$ $6x + 6 + 3a = 57$ $12 + a = 19$ $8x + 10 + a = 57$ $a = x + 2$ implied by $x + 2$ on the answer line or diagram. Allow their numerical x for x in each case e.g. $2 \times$ *their* $x + 2 + a = 19$

19 A sequence begins

3, -6, 1, 24, 48,

(a) Write down the term-to-term rule for this sequence.

..... [1]

(b) Write down the next **two** terms.

..... and ..... [1]

Mark Scheme:

(a)	Multiply by –2 oe	**1**	Accept equivalent rule, e.g. multiply by 2 and then change the sign. Accept x –2 Do **not** accept: • use of variable e.g. $-2n$, $-2x$ • double and **add** a negative sign
(b)	–96 **and** 192	**1**	Both correct for 1 mark. No FT

20 Blessy has r red flowers, w white flowers and y yellow flowers.

$r : w = 3 : 2$
$w : y = 4 : 3$

Blessy has 12 yellow flowers.

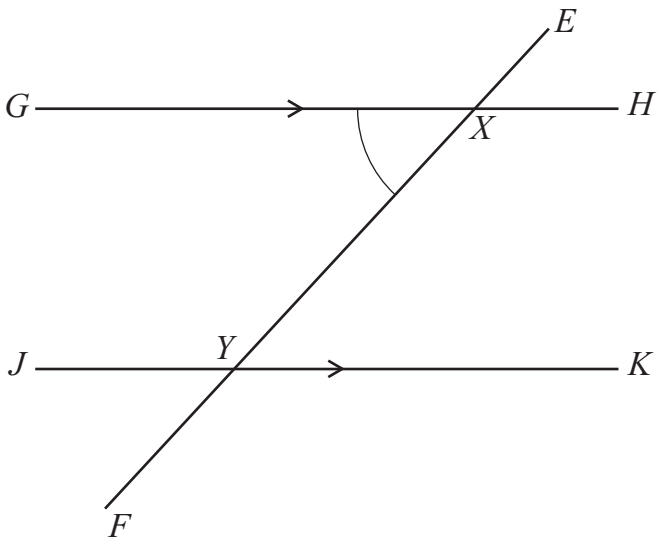
Work out how many flowers she has in total.

..... [2]

Mark Scheme:

	52	**2**	
	either 16 associated with white or 24 associated with red **or** for $(r : w : y) = 6 : 4 : 3$ (or equivalent) **or** for sight of any multiple of 13	**B1**	

21 The diagram shows a pair of parallel lines, *GH* and *JK*.



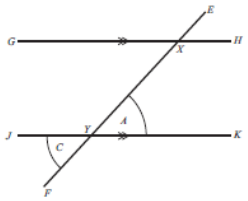
EF is a straight line that crosses *GH* at *X* and crosses *JK* at *Y*.

On the diagram,

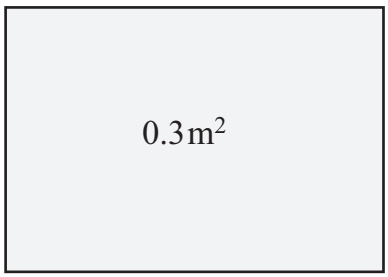
- label with the letter A the angle that is **alternate** to angle *GXY*,
- label with the letter C the angle that is **corresponding** to angle *GXY*.

[2]

Mark Scheme:

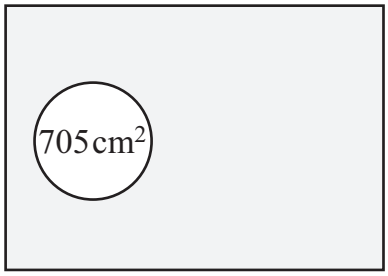
		**2**	Accept another label if it is clear that it refers to alternate / corresponding.
	1 correct label	**B1**	Accept another label if it is clear that it refers to alternate / corresponding.

22 A piece of paper has an area of $0.3\,m^2$.



NOT TO SCALE

A circle of area $705\,cm^2$ is cut out of the piece of paper.



NOT TO SCALE

Work out the area of the paper that remains.
Give your answer in square metres.

..... m^2 [2]

Mark Scheme:

	0.2295 (m^2)	**2**	
	0.0705 **or** 3000 seen	**B1**	

23 Factorise fully.

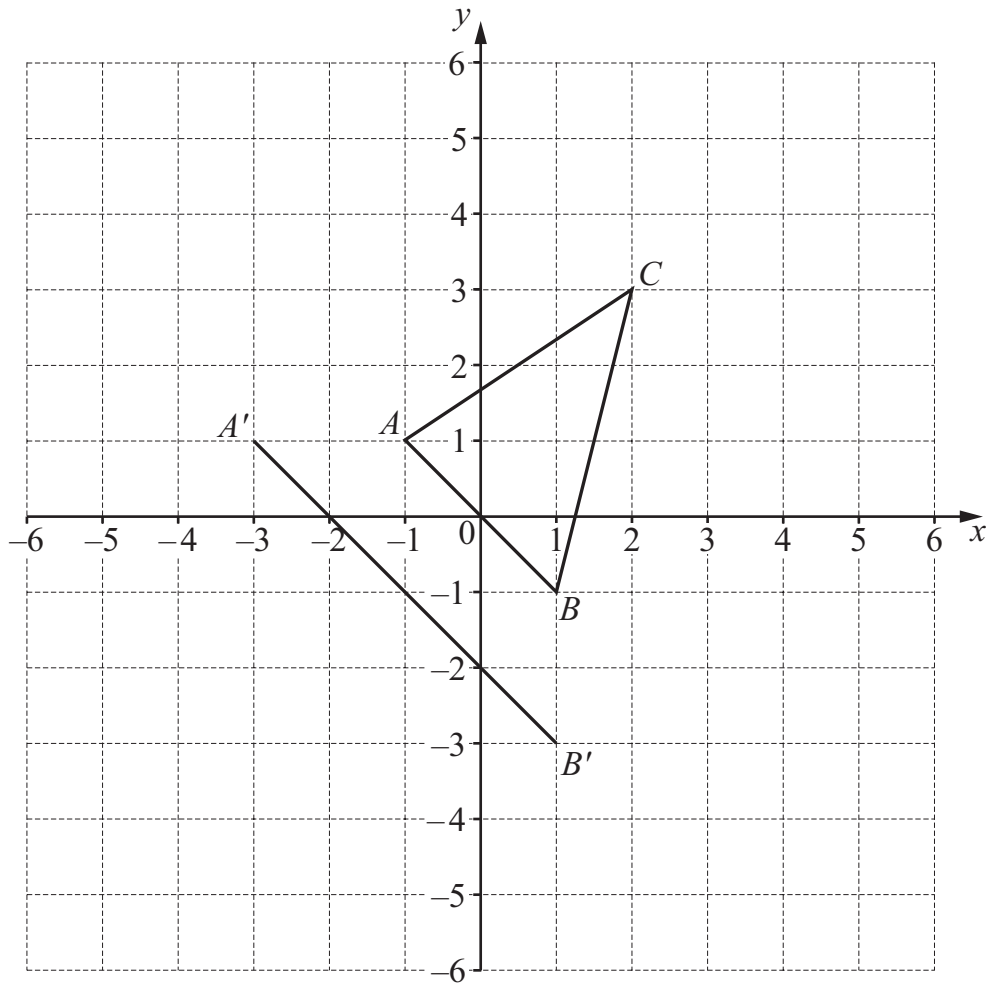
$10ab - 5b^2$

..... [2]

Mark Scheme:

	$5b(2a - b)$	**2**	
	Partial factorisation $5(2ab - b^2)$ **or** $b(10a - 5b)$ **or** $5b(2a - b)$ in working	**B1**	

24 The diagram shows a triangle ABC on a grid.



A' and B' are the images of A and B after an enlargement.

(a) Plot C', the image of C after the enlargement. [1]

(b) Describe fully the enlargement from triangle ABC to triangle $A'B'C'$.

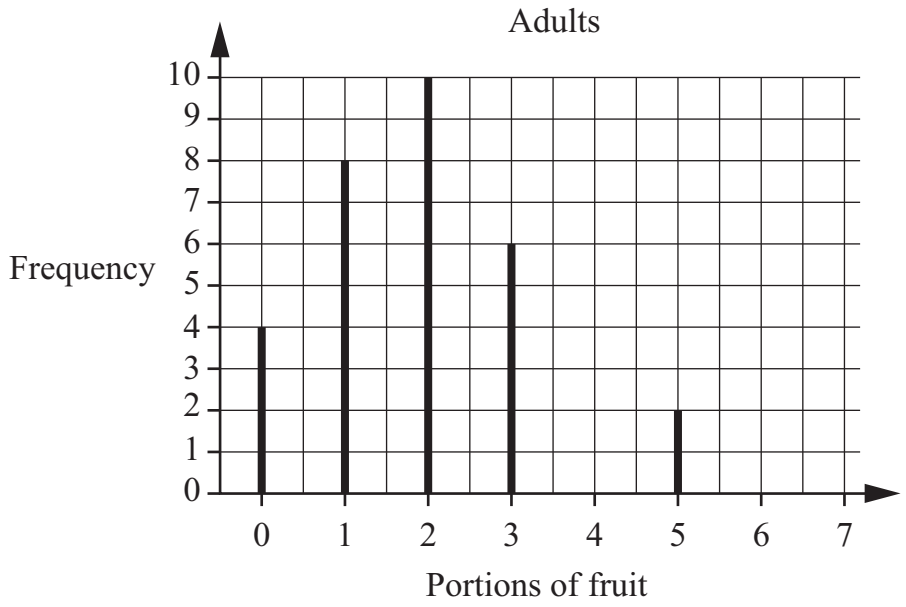
.....

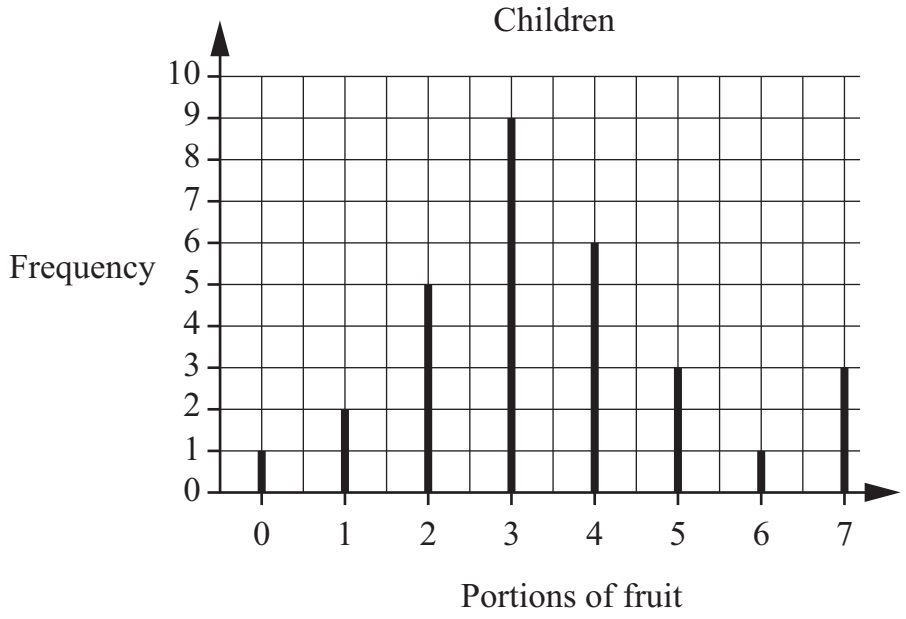
..... [2]

Mark Scheme:

(a)	C' plotted at (3, 5)	**1**	Ignore lack of label if position is clear. The sides of the triangle do not need to be drawn for the mark to be awarded.
(b)	(enlargement) (scale factor) 2 **and** (centre) (1, 1)	**2**	e.g. enlargement of 2 at (1, 1) Combinations of transformations score 0
	One element of the description.	**B1**	

25 Hassan investigates the amount of fruit that people eat.
The bar-line charts show the number of portions of fruit that 30 adults and 30 children ate on Monday.





Tick (✓) to show who ate more fruit on Monday.

Adults ☐ Children ☐

Give a reason to explain your answer.

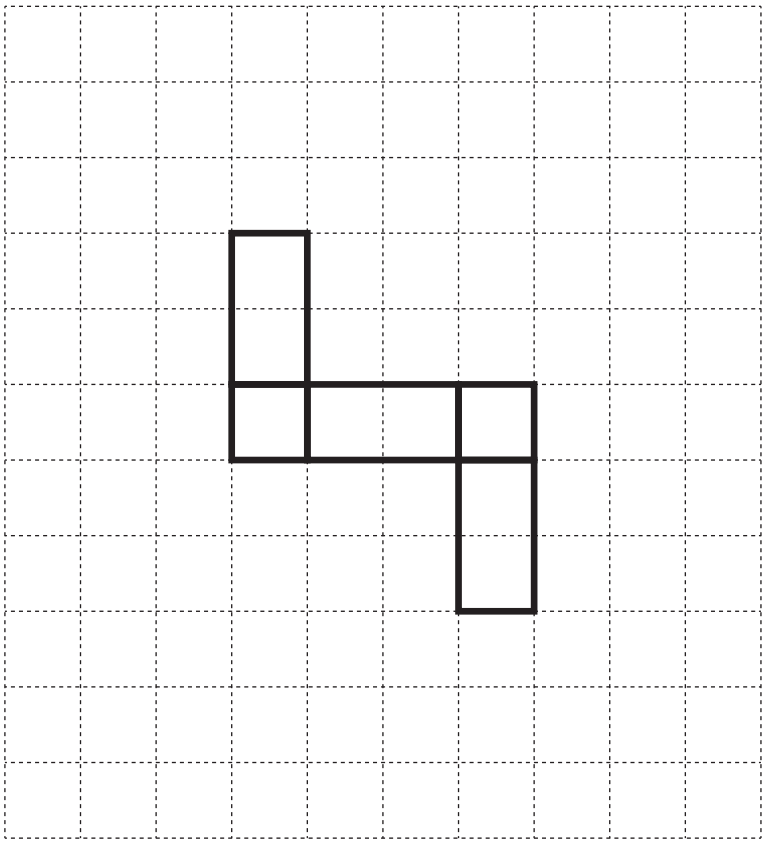
.....

..... [1]

Mark Scheme:

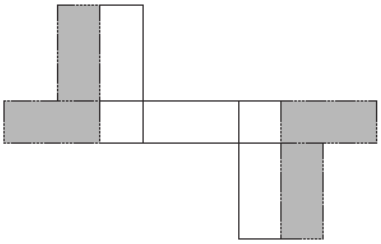
	Ticks Children **and** gives a correct reason, e.g. • The mode/ median/ mean/ average for children is higher. • The chart for children is centred more to the right. • More children ate a large amount of fruit. • Most adults didn't eat very much fruit. • Children ate 105 portions adults ate 56	**1**	Do **not** accept 'children eat more fruit.' Values may be seen by graph. If values are found, they must be correct: Adults: mode 2, median 2, mean $\frac{105}{30}$ or 3.5 Children: mode 3, median 3, mean $\frac{56}{30}$ or 1.867 (which may be rounded or truncated further e.g. 1.9)

26 This is part of the net of a cuboid.



Draw the missing face to complete the net. [1]

Mark Scheme:

	Any one of the four possible positions, i.e. one of the shaded faces shown. 	1	