Candidate forename		Candidate surname	

Centre number						Candidate number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

GCSE

A502/01

MATHEMATICS A

Unit B (Foundation Tier)

THURSDAY 19 JANUARY 2012: Afternoon
DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

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.

This paper has been pre modified for carrier language

READ INSTRUCTIONS OVERLEAF

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INSTRUCTIONS TO CANDIDATES

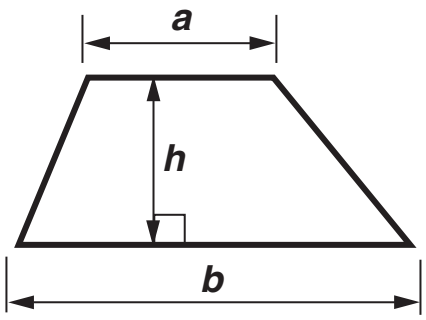
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you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

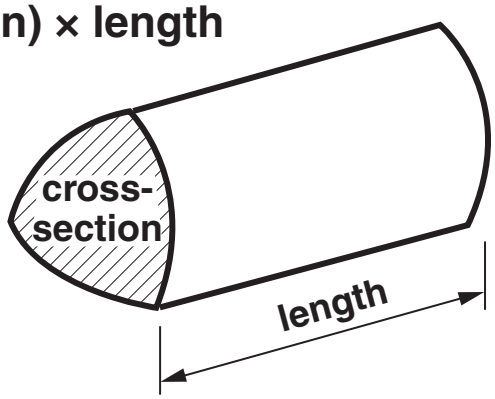
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**
- **The total number of marks for this paper is 60.**

FORMULAE SHEET: FOUNDATION TIER

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



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

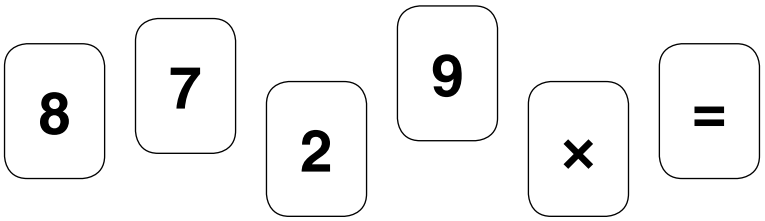


1 (a) Complete this table.

Fraction		Percentage
$\frac{3}{4}$	=	
	=	10%

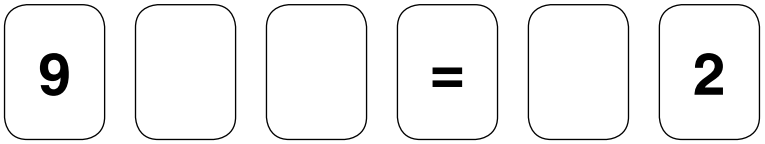
[2]

(b) (i) Jenny has these six cards.



Jenny arranges ALL of the cards to make a correct calculation.

Complete the three cards to show this calculation.



[1]

(ii) Jenny swaps × **for** ÷ **but keeps all the other cards.**

She makes two DIFFERENT, correct calculations using the six cards.

Complete the cards to show these calculations.

7		÷		=	8
		÷		=	

[2]

2 (a) Tom buys a rose bush costing £3.40 and a garden fork costing £12.75.
He pays with a £20 note.

How much change should he receive?

(a) £ _____ [3]

(b) (i) Gita sees these plants for sale.

FLOWERING PLANTS FOR SALE
£2.80 EACH OR
OFFER PRICE: 4 FOR £10

Gita buys 4 of these plants.
How much cheaper is it for Gita to buy 4 plants at the Offer Price than separately?

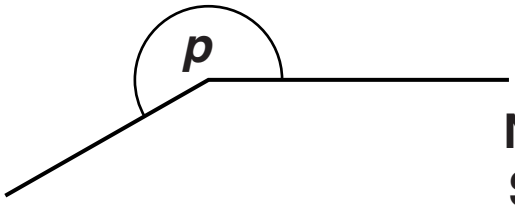
(b)(i) £ _____ [2]

(ii) These plants produce either red or white flowers.
Out of 80 plants, 7 produce white flowers.

Is this more or less than 10% of the plants?
Show how you decide.

[3]

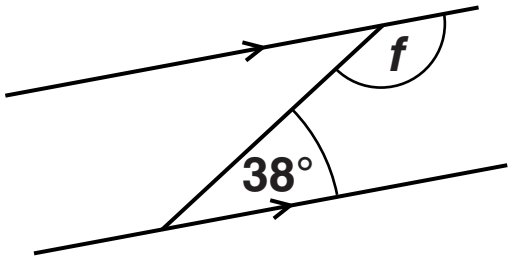
3 (a) What type of angle is angle *p*?



NOT TO SCALE

(a) _____ **[1]**

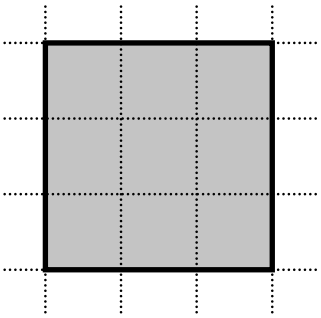
(b) Work out the size of angle *f*.



NOT TO SCALE

(b) _____ **° [2]**

4 (a) A square of side 3cm is drawn on a one-centimetre grid.



How many one-centimetre squares does it contain?

(a) _____ [1]

(b) A square of side 8 cm is drawn on a one-centimetre grid.

How many one-centimetre squares does it contain?

(b) _____ [1]

(c) A square is drawn on a one-centimetre grid and contains 225 of the one-centimetre squares.

How long is one of its sides?

(c) _____ cm [1]

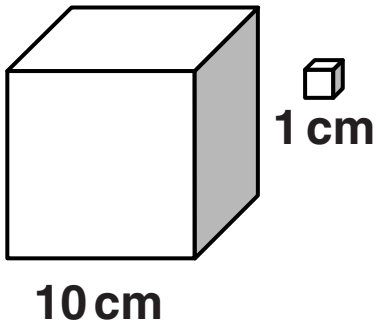
(d) A square of side *h* cm is drawn on a one-centimetre grid.

Complete this statement.

(d) This square contains _____ one-centimetre squares. [1]

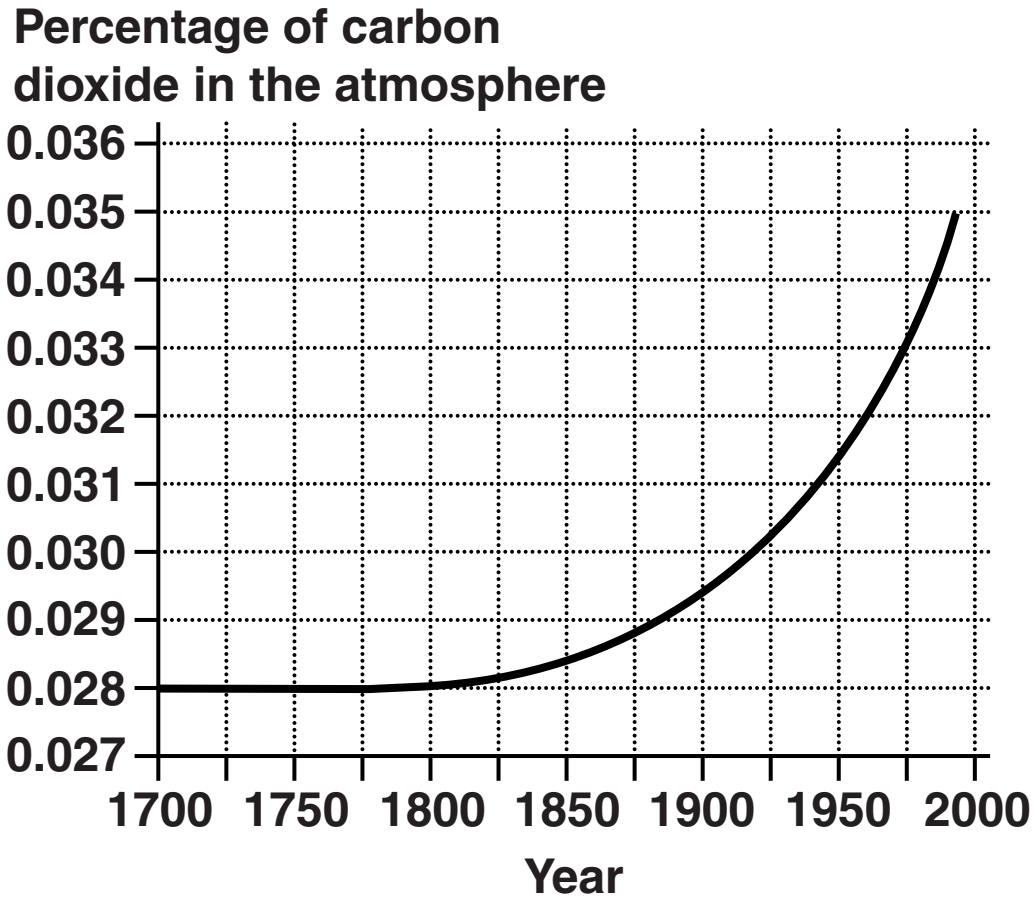
(e) A large cube is made using one-centimetre cubes. Each edge of the large cube is 10 cm long.

How many one-centimetre cubes are used to make the large cube?



(e) _____ [1]

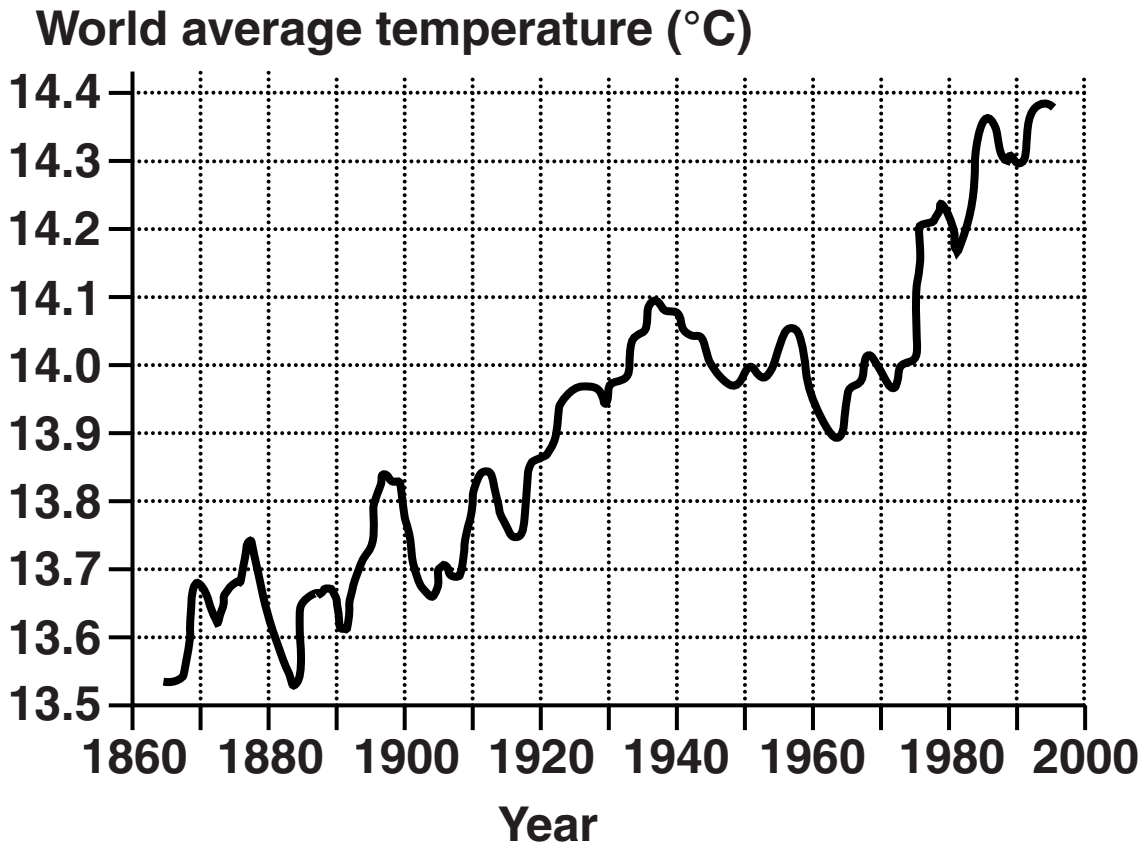
5 (a) This graph shows the percentage of carbon dioxide in the atmosphere from 1700 to 1995.



In approximately which year was the percentage of carbon dioxide in the atmosphere 0.031?

(a) _____ [1]

(b) This graph shows the world average temperatures from 1865 to 1995.



Describe how world average temperatures have changed from 1865 to 1995.
Use figures from the graph in your answer.

[3]

6 Here are some situations and some formulas.

	Situation
1	The distance all around any regular polygon is the same as the number of sides multiplied by the length of one side.
2	Alma and Tessa shared a bag of sweets equally and there was one sweet left. How many sweets altogether were in the bag?

	Formula
a	$t = 2h + 1$
b	$p = 5g$
c	$p = f g$
d	$t = \frac{m}{2} + 1$

(a) Match each situation to a formula representing it. Write the letter for the correct formula next to the number of the situation in the answer space.

(a) Situation 1: Formula _____

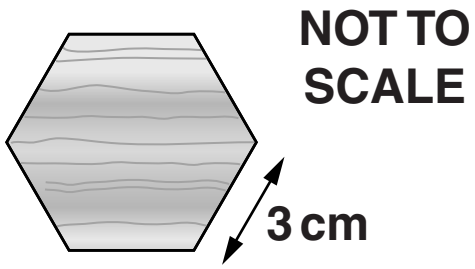
Situation 2: Formula _____ [2]

(b) For Situation 2 in part (a), explain clearly what each letter represents in the formula you have chosen.

[2]

7 Alan makes drinks mats.

(a) He cuts out a wooden base that is a regular hexagon of side 3 cm.



Alan covers the top of the base with a pattern of tiles.
The tiles are equilateral triangles of side 3 cm.

(i) On the triangular spotty paper, show accurately the pattern of tiles that covers the base.

[2]

(ii) Alan uses black triangular tiles and white triangular tiles.

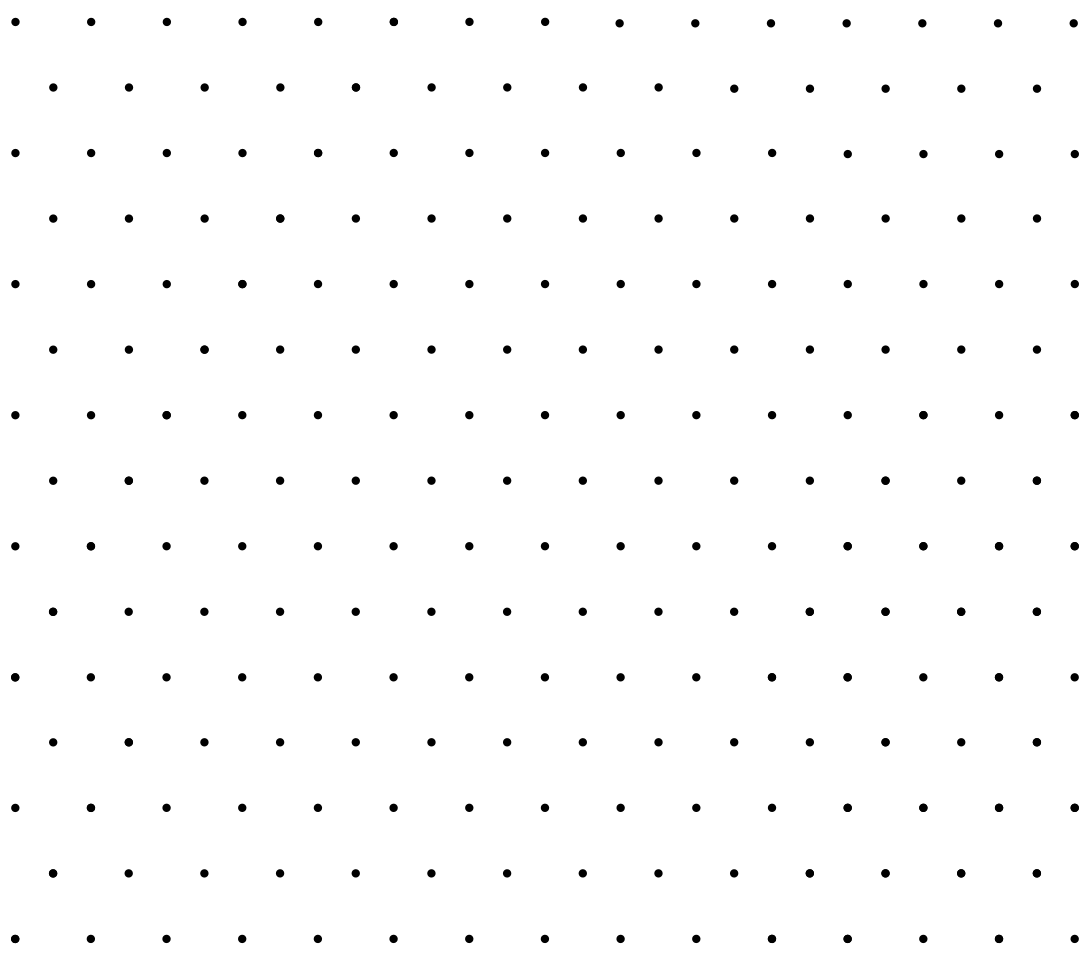
Shade your drawing in part (i) so that it has EXACTLY 2 lines of symmetry. [2]

(iii) Using your drawing, work out the sum of the interior angles of a regular hexagon.

(a)(iii) _____° [2]

(b) Alan designs a new drinks mat.
He uses eight of the equilateral triangular tiles to make a quadrilateral.

(i) On the triangular spotty paper below, draw a quadrilateral that he could make.



[2]

(ii) Give the mathematical name of your quadrilateral.

(b)(ii) _____ **[1]**

8* **Paul and Adile talk about their homework.**

Paul says, 'I can draw a triangle with two obtuse angles in it.'
Adile says, 'I can draw a quadrilateral with two obtuse angles in it.'

Is Paul correct?

Is Adile correct?

Explain your reasons.

[5]

9 (a) When $\frac{1}{9}$ is changed to a decimal it is recurring,

like this:

0.11111111 .....

Show how you would indicate that the decimal is recurring.

(a) _____ [1]

(b) Using division, change $\frac{5}{6}$ to a decimal.

(b) _____ [3]

(c) When $\frac{1}{9}$ and $\frac{1}{3}$ are changed to decimals, both are recurring.

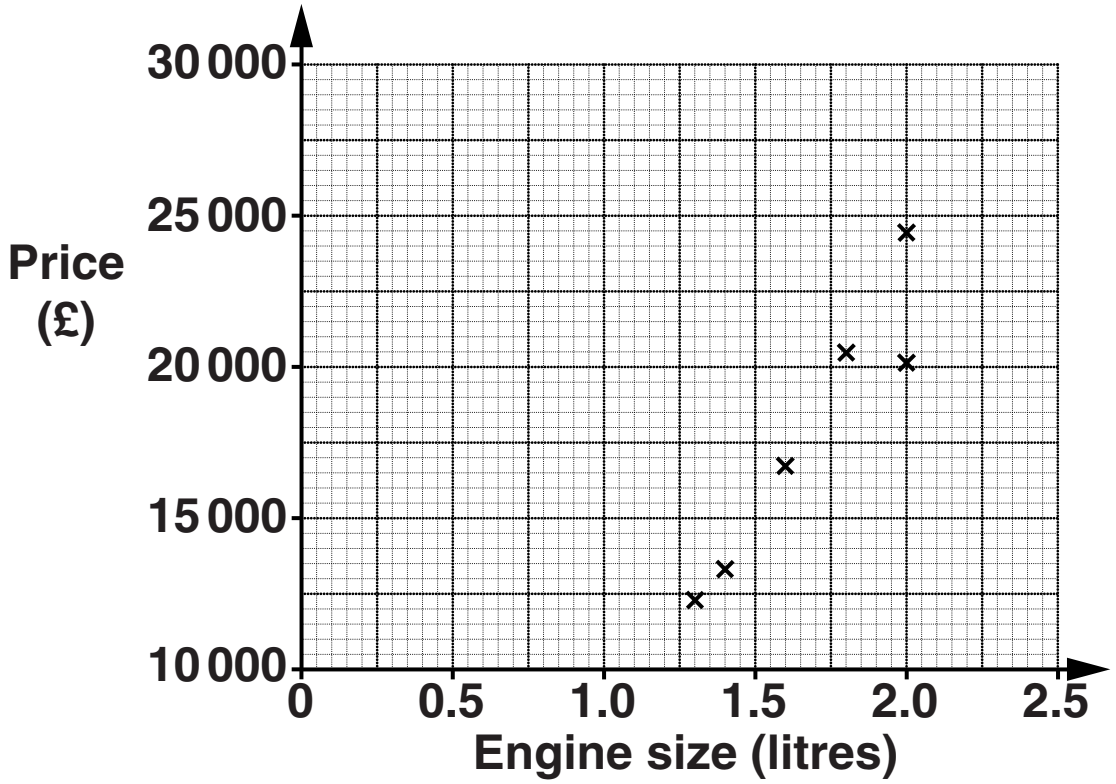
Write down a fraction between $\frac{1}{9}$ and $\frac{1}{3}$ that is NOT recurring.

(c) _____ [1]

10 A website gives the price and engine size for different models of one manufacturer's cars.

Engine size (litres)	Price (£)
1.3	12 360
1.4	13 345
1.6	16 695
1.8	20 495
2	20 095
2	24 295
2	29 945
2.2	27 345
2.5	25 745

(a) Complete the scatter graph below.
The first six points have been plotted for you.



[2]

(b) Draw a line of best fit on your scatter graph. [1]

(c) Describe the correlation between price and engine size.

(c) _____ [1]

(d) This manufacturer is planning to produce a car with a 1.7 litre engine.

What might you expect its price to be?

(d) £ _____ [1]

(e) One of the cars is a sports model that is more expensive than other cars with the same engine size.

Put a ring round the point that represents the sports model. [1]

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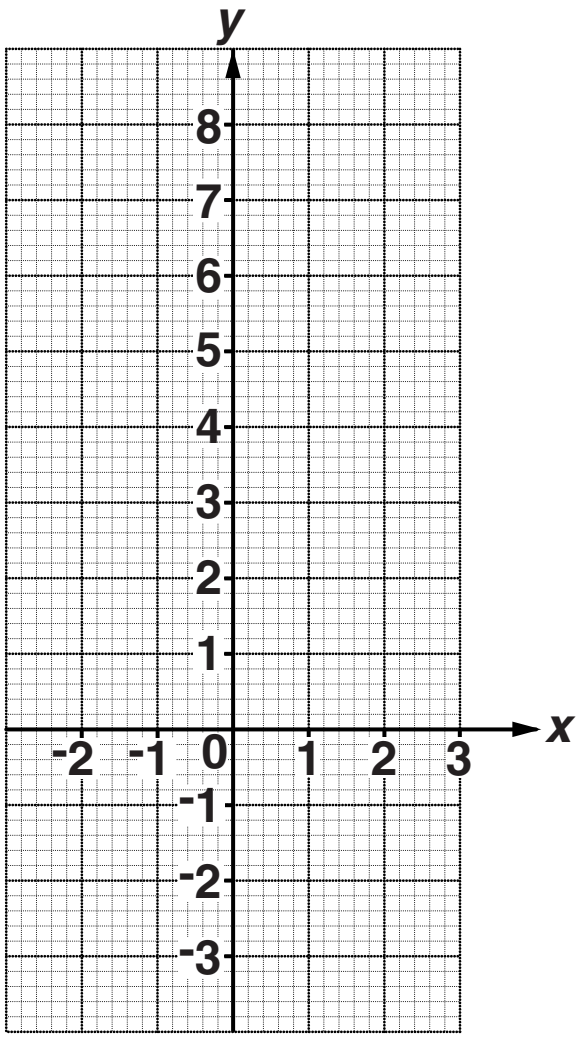
11 (a) On the grid, draw the graph of $y = 4 - 2x$ for x from -2 to 3.



[3]

(b) On the same grid, draw the graph of $y = 3$ and use it to solve these simultaneous equations.

$y = 4 - 2x$
$y = 3$

(b) $x =$ _____

$y =$ _____ **[3]**

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