OCR
RECOGNISING ACHIEVEMENT

F

Thursday 8 November 2012 – Afternoon

GCSE MATHEMATICS A

A503/01 Unit C (Foundation Tier)

Duration: 1 hour 30 minutes
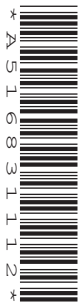
Candidate forename		Candidate surname	

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 (*).
* Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
* The total number of marks for this paper is **100**.
* This document consists of **20** pages. Any blank pages are indicated.

✓ **You are permitted to use a calculator for this paper**
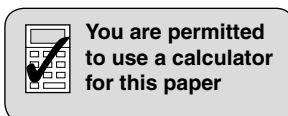
This paper has been pre modified for carrier language

OCR is an exempt Charity

Turn over

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)** Complete this multiplication grid.

×	5		
7	35		
3			30
9		72	

[3]

(b) Complete each box to make the following statements correct.

(i) ☐ p + 57p = £1

[1]

(ii) $\frac{1}{4}$ of 48 = ☐

[1]

(iii) 5 − ☐ = ⁻2

[1]

Turn over

2 Point A is plotted on the grid.
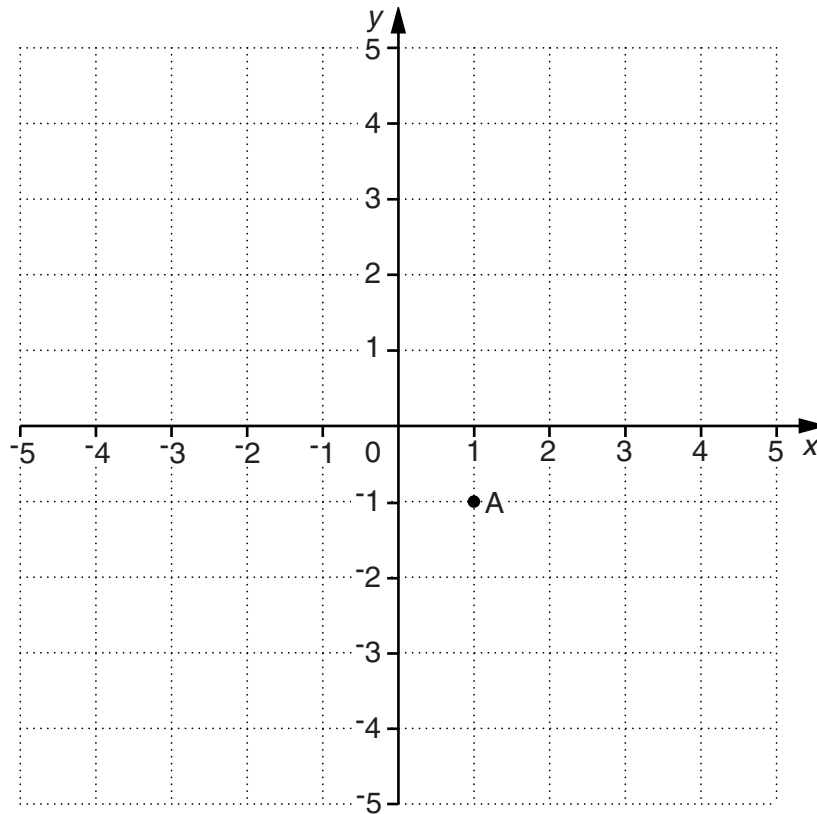
(a) Plot the point (3, ⁻1) on the grid and label it B. **[1]**

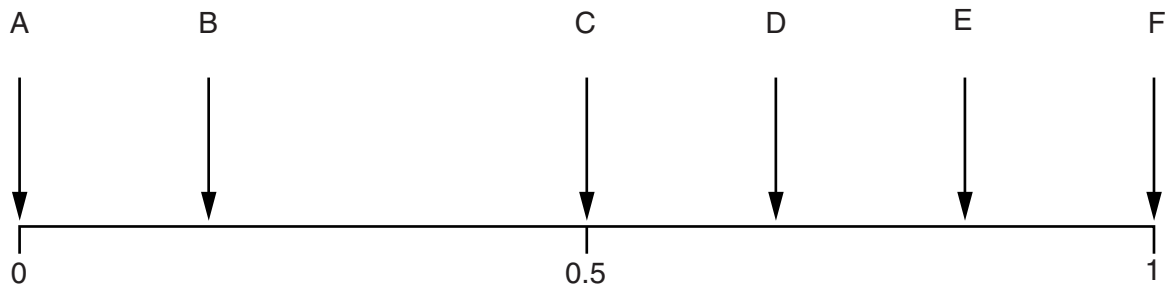**(b)** ABCD is a rectangle with an area of 8 cm².

Plot and label the points C and D on the grid to complete the rectangle.
Write down the coordinates of C and D.

(b) C (_____, _____)

D (_____, _____) **[4]**

3 The probability line shows the probabilities of 6 events.

Choose the arrow which matches each of these events when rolling a fair 6-sided dice.

(a) Rolling the number 5.

(a) _____ [1]

(b) Rolling an odd number.

(b) _____ [1]

(c) Rolling the number 7.

(c) _____ [1]

(d) Rolling a number less than 6.

(d) _____ [1]

Turn over

4   Choose from the following numbers and words to complete each sentence.

| pints | 2.2 | yards | 1.75 |

| 4.5 | | litres |

| grams | 3 | feet | 5 |

(a) 8 kilometres is about the same as _____ miles.   **[1]**

(b) 1 kilogram is about the same as _____ pounds.   **[1]**

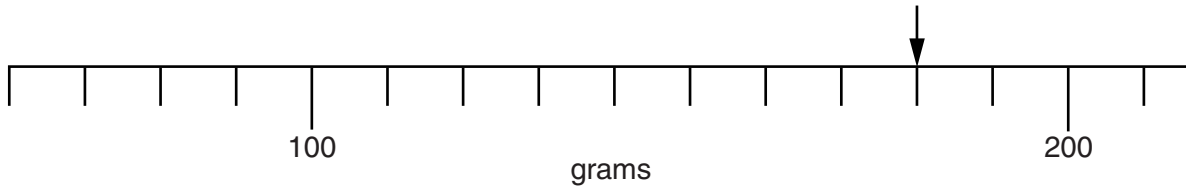**(c)** 1 gallon is about the same as _____ _____.   **[2]**

5   Leroy has £20 to spend on fizzy drinks for a party.
Bottles of fizzy drink each cost £1.28.

What is the largest number of bottles that Leroy can buy and how much money is left over?
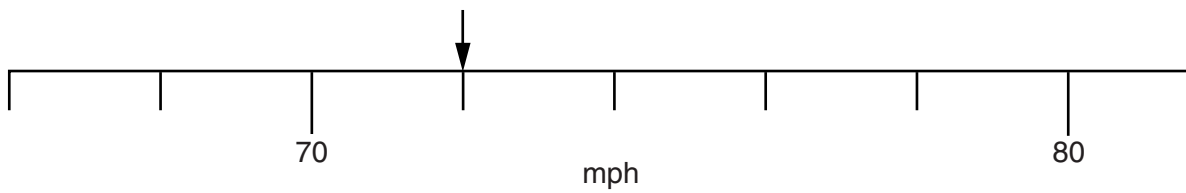
_____ bottles with _____ left over **[3]**

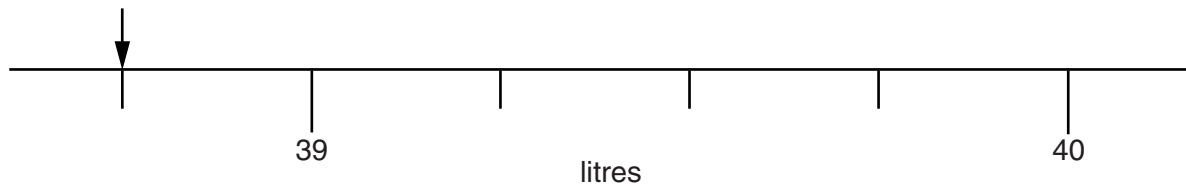**6** **(a)** Write down the value shown by each arrow on these scales.

(i)

(a)(i) _____ g **[1]**

(ii)

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

(iii)

(iii) _____ litres **[1]**

(b) Write the following lengths in order, starting with the shortest.

58 cm   0.582 m   579 mm   59 mm

(b) _____   _____   _____   _____ **[2]**
shortest

Turn over

7 **(a)** The fair regular hexagonal spinner below has been divided into six numbered sections.
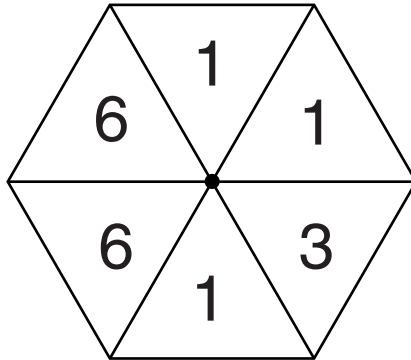

Complete each sentence.

(i) It is **evens** that the spinner will land on number _____.   **[1]**

(ii) It is _____ that the spinner will land on number 3.   **[1]**

(iii) It is **impossible** that the spinner will land on number _____.   **[1]**

(b) A different fair spinner with eight equal sections has the following properties.

- There are four different numbers on the spinner.
- The probability that the spinner lands on an odd number is greater than it landing on an even number.
- It is more likely that the spinner will land on the number 8 than any other number.

Write a possible set of numbers for this spinner.
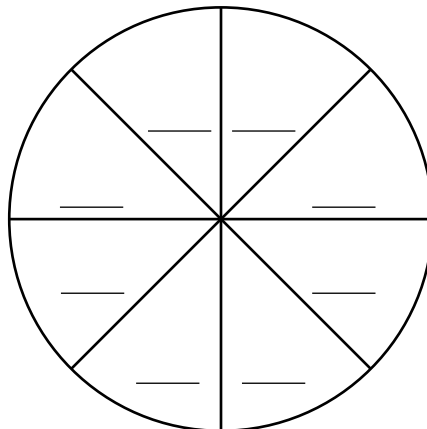
[3]

8 Laura has a part time job.
 She is paid £5.80 per hour for work done on a weekday (Monday to Friday).
 She is paid 25% more per hour for any work done on Saturday.

 (a) The table shows the hours that Laura worked last week.

Day	Hours worked
Monday	2
Tuesday	2
Wednesday	4.5
Thursday	2
Friday	3
Saturday	7

 Work out Laura's total pay for last week.

 (a) £ _____ **[4]**

 (b) One week Laura earned £133.40.
 She worked for 18 hours in total during the weekdays.

 For how many hours did she work on Saturday that week?

 (b) _____ hours **[3]**

Turn over

9 **(a)** Simplify completely.

   (i) $7 \times a \times 3$

   (a)(i) _____ **[1]**

   (ii) $6x + 5x - x$

   (ii) _____ **[1]**

   (iii) $5a + 9b - 3a - 4b$

   (iii) _____ **[2]**

(b) In each of these expressions $a = 2$, $b = {}^-3$, $c = 4$.

$$ac \qquad 3b - 1 \qquad c^2 - 8 \qquad bc + a \qquad ab + c$$

John finds a pair of expressions with a common value.
Katie finds another pair of expressions with a different common value.

Find the two pairs of expressions and the common value for each.

(b) _____ and _____ with value _____

_____ and _____ with value _____ **[4]**

10 Complete each box to make the following statements correct.

(a) $\dfrac{3}{5} \times \dfrac{1}{7} = \dfrac{\boxed{}}{\boxed{}}$ **[1]**

(b) $\dfrac{3}{11} \div 5 = \dfrac{3}{11} \div \dfrac{5}{\boxed{}} = \dfrac{3}{11} \times \dfrac{\boxed{}}{\boxed{}} = \dfrac{3}{55}$ **[2]**

11 In a survey, the number of people in each car passing a junction was recorded.
Some probabilities were calculated and are shown in the table.

Number of people in each car	1	2	More than 2
Probability	0.5	0.3	

(a) Find the probability that there were more than 2 people in a car.

(a) _____ **[2]**

(b) There were 450 cars in the survey.

How many of these cars contained exactly 1 person?

(b) _____ **[2]**

Turn over

12 Hayleigh and Adam are making pancakes using this recipe.

> **Pancake mixture recipe**
>
> **Makes 12 pancakes**
> _____
>
> 110 g plain flour
>
> pinch of salt
>
> 2 eggs
>
> 200 ml of milk
>
> 75 ml of water
>
> 50 g of butter

(a) Hayleigh makes 18 pancakes.
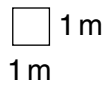
Work out how much plain flour she uses.

(a) _____ g **[2]**

(b) Adam has 450 ml of milk and 125 g of butter.
He has lots of all of the other ingredients.

Work out the maximum number of pancakes that he can make.

(b) _____ **[3]**

13* Robert uses **36** of these paving slabs to make a **rectangular** patio.

☐ 1 m

1 m

He wants to make the patio that has the smallest possible perimeter.

By considering at least 3 different-sized rectangular arrangements, find the length and width of the patio with the smallest perimeter.

length _____ m width _____ m **[6]**

Turn over
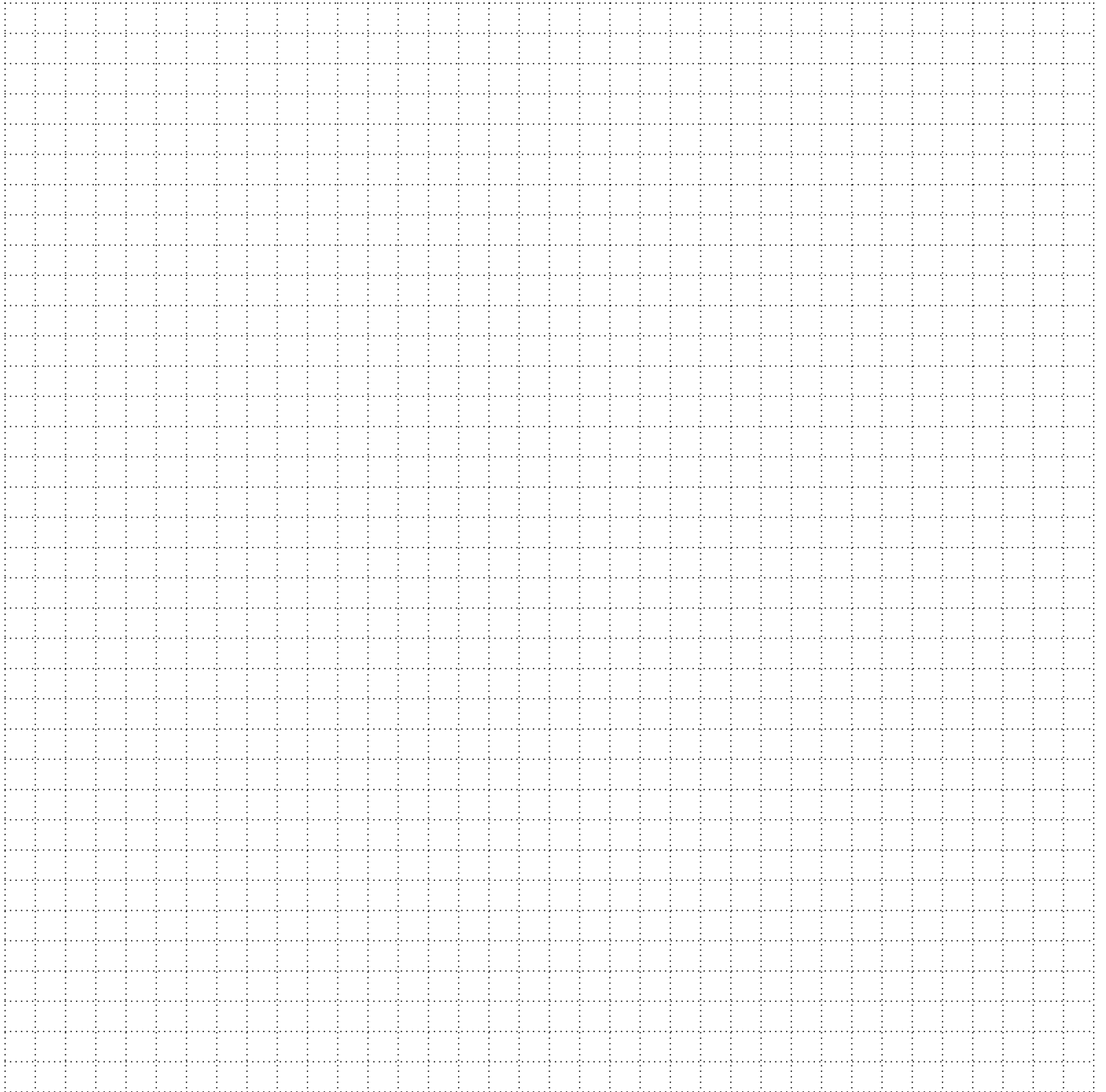
14 The mileage chart shows the distance in miles between some cities.

116	*London*			
87	199	*Manchester*		
128	209	71	*York*	
98	210	34	100	*Liverpool*

Birmingham

The chart shows, for example, that it is 210 miles from London to Liverpool.

(a) (i) Ben drives from London to Birmingham and then from Birmingham to Manchester.

Show that he drives a total of 203 miles.

_____

_____

_____ **[2]**

(ii) Ben's journey costs £42.05 in fuel.
His car uses 1 litre of fuel for every 7 miles of this 203 mile journey.

How much did Ben pay per litre for his fuel?

(a)(ii) £ _____ **[4]**

(b) Lucy drives from York to Manchester and then from Manchester to Liverpool.
She takes 2 hours to complete the whole journey.

Calculate her average speed, in miles per hour, for the whole journey.
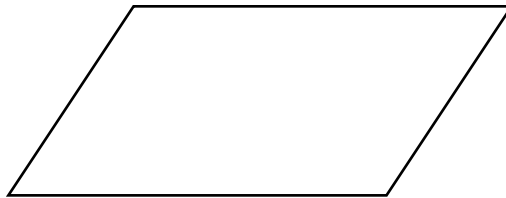
(b) _____ mph **[3]**

15 Geta did a survey of the type and weight of tea bought by 100 people.
She displayed her results in a table.

Complete the table.

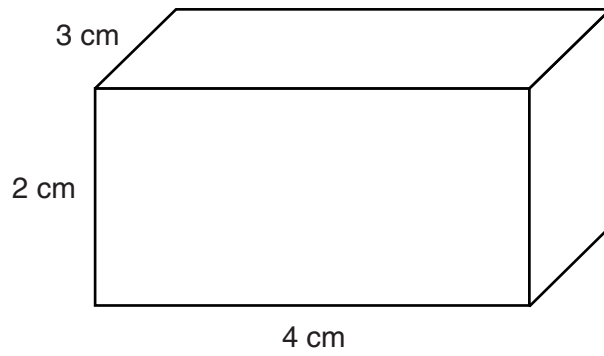| Tea type / Weight	Regular tea bags	Decaffeinated tea bags	Loose leaf tea	Total
50 g	2	0	5	
100 g	35	18		60
200 g	16			
Total		25		100

[3]

16 This is a parallelogram.

Using suitable measurements from the diagram, work out the area of the parallelogram.
Give the units of your answer.

_____ [3]

Turn over

17 A cuboid measures 2 cm by 3 cm by 4 cm.

3 cm

2 cm

4 cm

(a) On the centimetre square grid below, draw accurately a net of the cuboid.

[3]

The cuboid is drawn on 3D axes using a 1 cm scale.
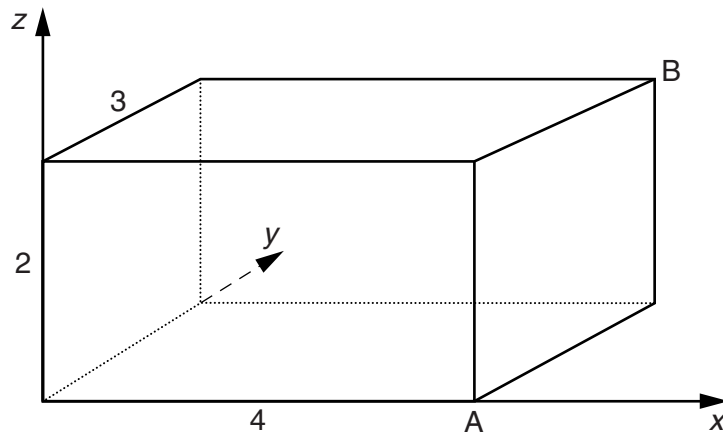
(b) Write down the coordinates of A and B.

(b) A (_____, _____, _____)

B (_____, _____, _____) **[2]**

18 (a) Multiply out the brackets and simplify your answer.

$$4(x + 3) + 3(2x - 5)$$

(a) _____ **[3]**

(b) Factorise this expression completely.

$$5xy + 10x$$

(b) _____ **[2]**

Turn over

19 Tariq is investigating whether a coin is biased.
He tosses the coin 600 times.
The coin lands on heads 315 times.

Does this provide evidence that Tariq's coin is biased?
Justify your answer. **[3]**

20 (a) Complete the table of values for $y = x^2 + x - 3$.

x	⁻4	⁻3	⁻2	⁻1	0	1	2
y	9	3	⁻1	⁻3	⁻3		3

[1]

(b) On the grid below draw the graph of $y = x^2 + x - 3$ for values of x from ⁻4 to 2.
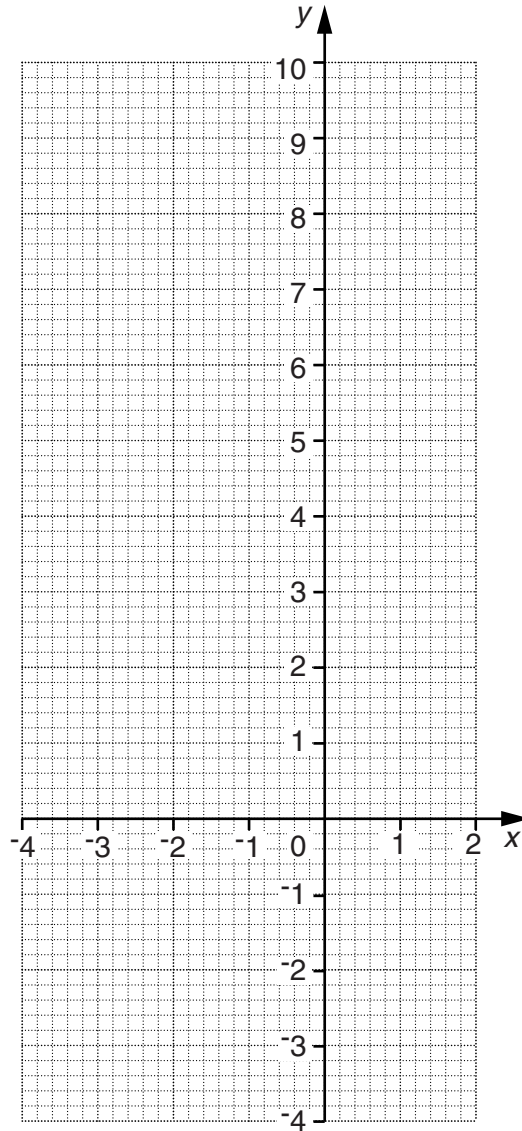
[3]

(c) Use your graph to solve the equation $x^2 + x - 3 = 0$.

(c) $x =$ _____ and $x =$ _____ [2]

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