1 (a) Solve this quadratic equation by factorisation.

$$x^2 - 7x + 10 = 0$$

(a) _____ **[3]**

(b) Solve algebraically these simultaneous equations.

$$4x + 3y = 6$$
$$y = 13 - 5x$$

(b) $x =$ _____

$y =$ _____ **[4]**

2   Solve, algebraically, these simultaneous equations.

$$20x + 3y = 1$$
$$6x - 5y = 18$$

$x =$ _____

$y =$ _____ **[4]**

3   Emil makes chairs and stools.
Each chair has 4 legs and each stool has 3 legs.
Emil has made c chairs and t stools.
In total the chairs and stools have 76 legs.

This information gives the equation

$$4c + 3t = 76.$$

(a)   Emil has made a total of 22 chairs and stools.

Complete this equation to show this information.

$$c + t = \boxed{}$$ **[1]**

(b)   Use algebra to solve these two equations simultaneously to find out how many chairs and how many stools Emil has made.

(b) chairs, $c =$ _____

stools, $t =$ _____ **[3]**

4 *Island Holidays* has many cottages for rent in the Shetland Islands.
They are for any number of people from 2 to 15.
The table shows information for nine of their cottages.
It shows the number of people each cottage can accommodate, and the cost
of renting it for a week in July.

Number of people	2	4							12
Cost (£)	510	640	550	800	820	1040	1130	1110	1350

The results for the first four cottages are plotted on the scatter diagram.
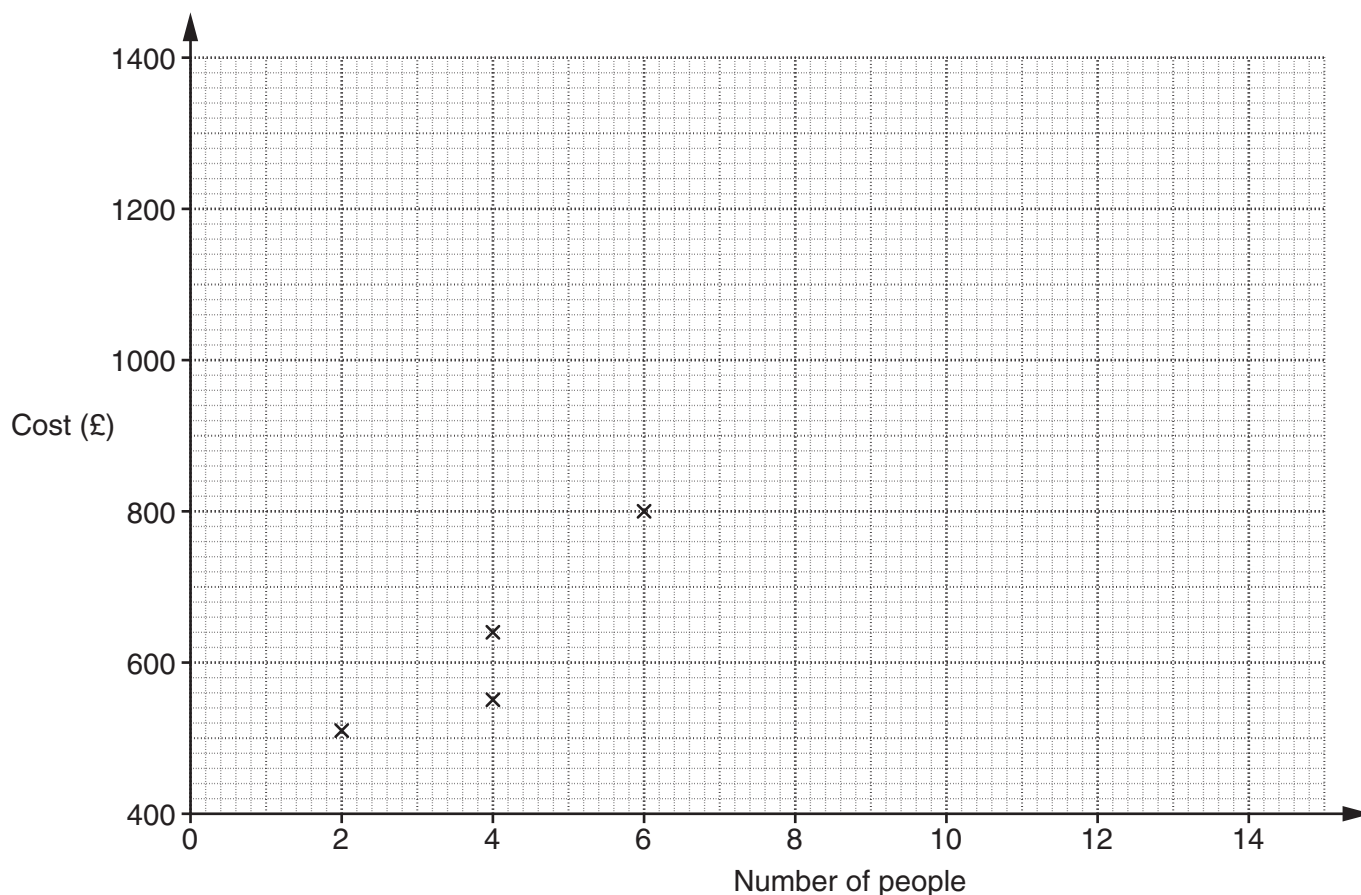
(a) Complete the scatter diagram and draw a line of best fit. **[3]**

(b)* Lizzie wants to rent a cottage for 10 people for a week in July.
She expects the food bill to be £400.
The cost of food and rent is to be shared equally between the 10 people.

Calculate how much each person should expect to pay.
Explain **how** you have worked out your answer.

_____

_____

_____

_____

_____

_____

_____

_____

_____ **[4]**

5 (a) Rearrange this formula to make p the subject.

$$t = 2p - 3$$

(a) _____ **[2]**

(b) Solve these simultaneous equations.

$$x + y = 7$$
$$x - y = {}^-3$$

(b) $x =$ _____ $y =$ _____ **[2]**

6   The grid shows the graph of $y = 2x - 4$.

$y = x - 4$
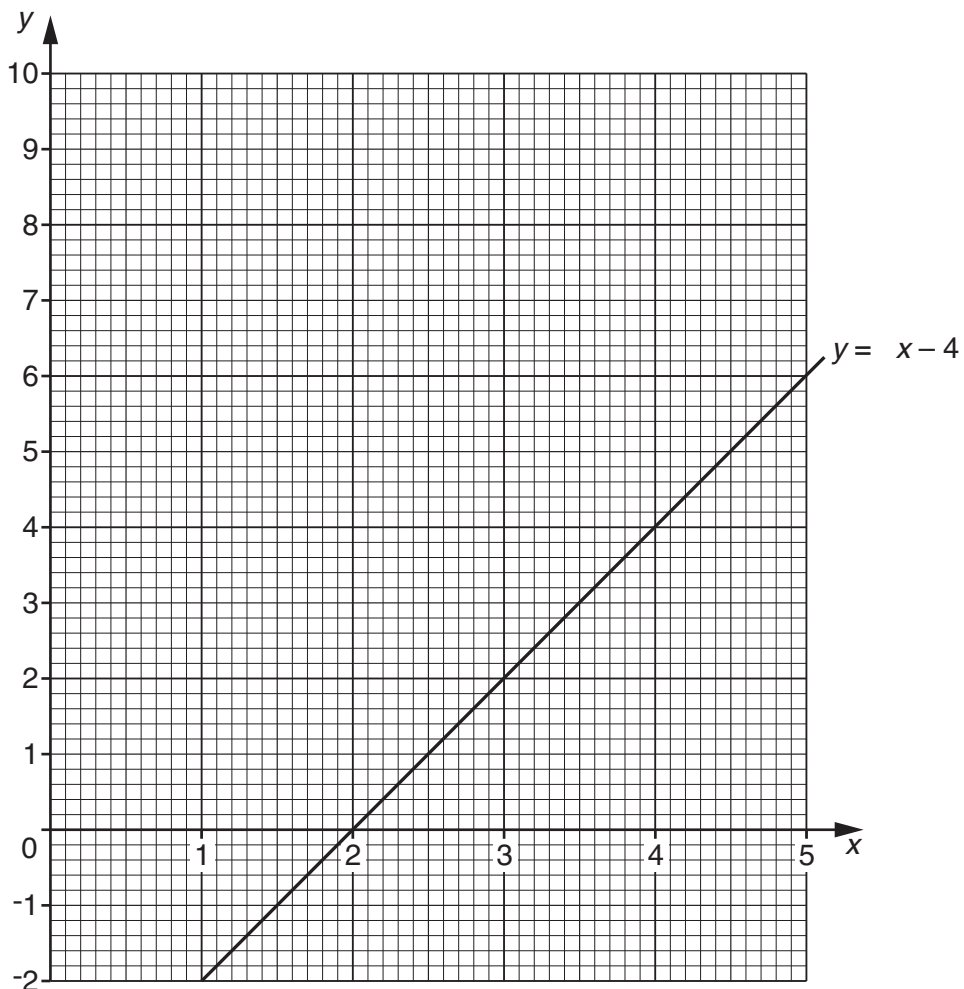
(a) Complete the table for $y = x^2 - 4x + 3$.

x	0	1	2	3	4	5
y	3	0		0	3	

[2]

(b) On the grid, draw the graph of $y = x^2 - 4x + 3$ for $0 \leqslant x \leqslant 5$.   **[2]**

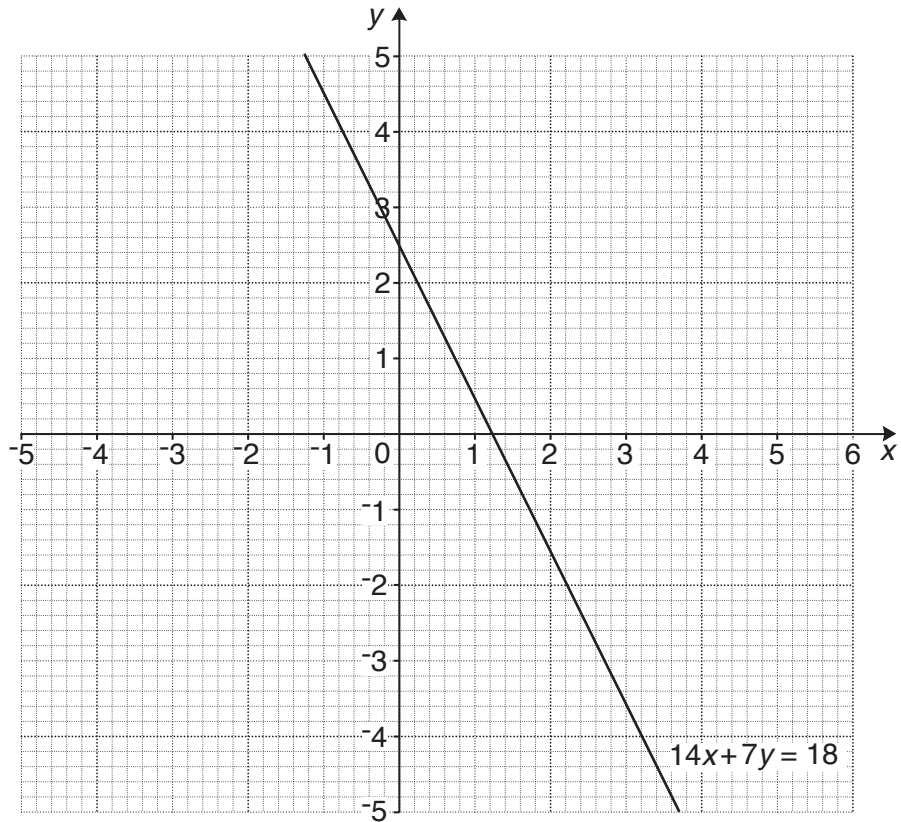**(c)** Use your graphs to solve these simultaneous equations.

$y = 2x - 4$

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

(c) $x =$ .... $y =$ ....

$x =$ .... $y =$ .... **[2]**

7 **(a)** The grid shows the graph of $14x + 7y = 18$.

(i) Complete this table of values for $y = 2x + 2$.

x	$^-3$	0	1
y			

[2]

(ii) On the grid, draw the straight line graph of $y = 2x + 2$. [2]

(iii) Use your graph to find the approximate solution of these simultaneous equations.

$$14x + 7y = 18$$
$$y = 2x + 2$$

(a)(iii) $x =$ _____

$y =$ _____ **[1]**

(b) (i) Use **algebra** to find the **exact** solution of these simultaneous equations.

$$14x + 7y = 18$$
$$y = 2x + 2$$

(b)(i) $x =$ _____

$y =$ _____ **[4]**

(ii) Explain why reading off the graph did not give the **exact** solution to these simultaneous equations.

_____

_____ **[1]**