GCSE MATHEMATICS
AQA | Edexcel | OCR | WJEC

(Level 5 - 7)

Solving Simultaneous Equations Graphically

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
• mathematical instruments

You *can* use a calculator.

Instructions

• Use black ink or black ball-point pen. Draw diagrams in pencil.
• Fill in the boxes at the top of this page.
• Answer all questions.
• You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
• Do all rough work in this book. Cross through any work you do not want to be marked.

Information

• The marks for questions are shown in brackets.
• You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.
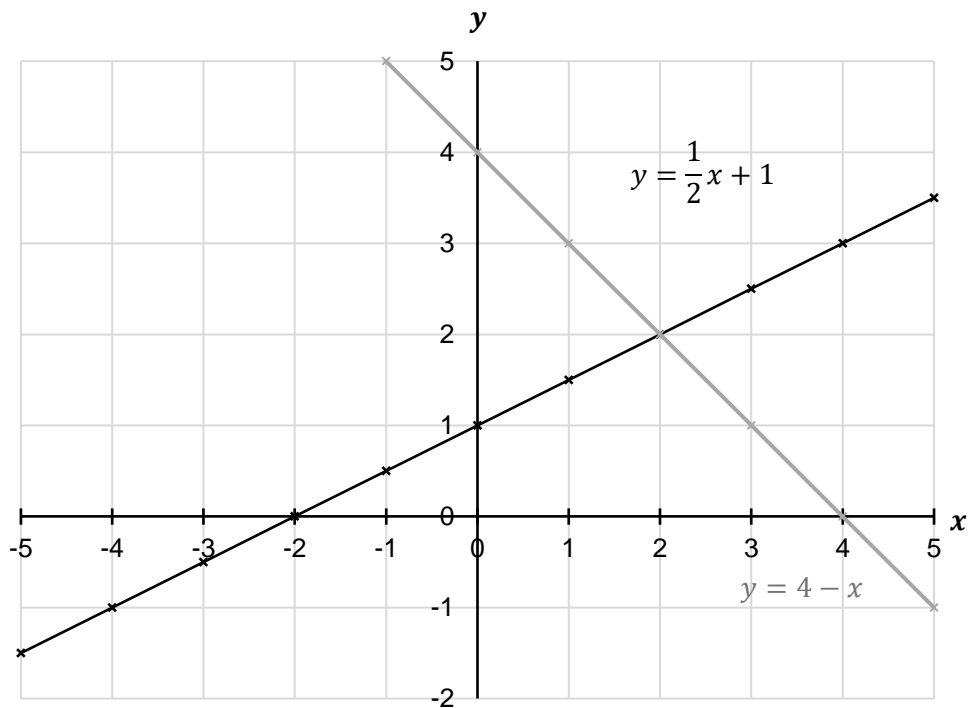
Advice

• In all calculations, show clearly how you work out your answer.

1 The graph below shows the lines of the equations $y = \frac{1}{2}x + 1$ and $y = 4 - x$. *(Level 5)*

Using the graph, solve the following simultaneous equations:
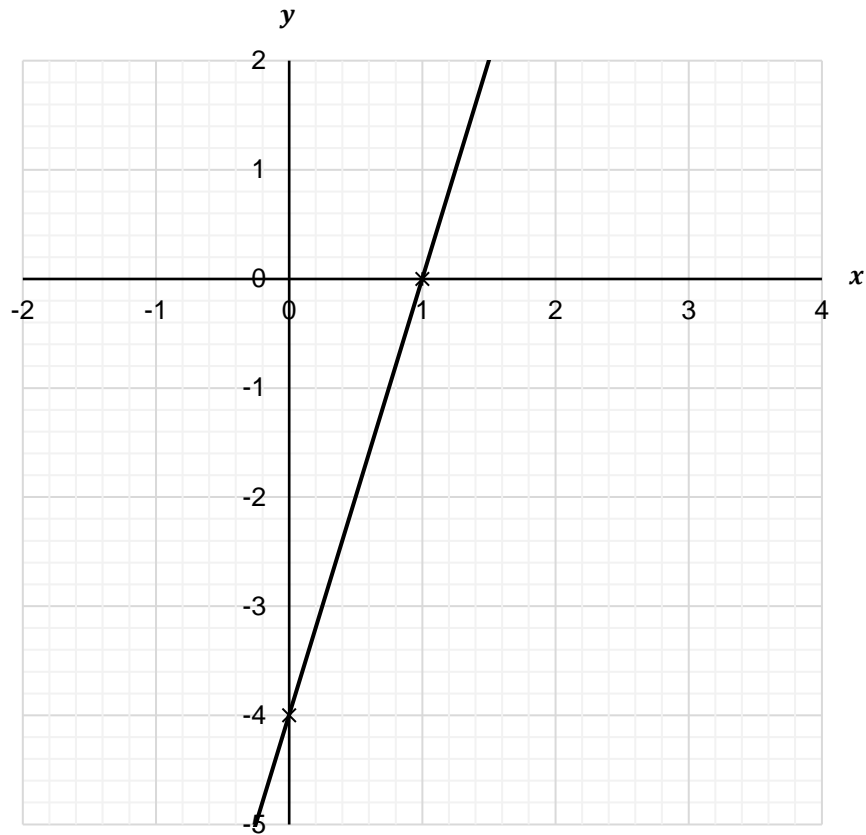
$$y = \frac{1}{2}x + 1$$

$$y = 4 - x$$

[2 marks]

_____

_____

$x =$ _____

$y =$ _____

Turn over for next question

5

Turn over ▶

2   The graph below shows the line of the equation $y = 4x - 4$.   *(Level 5)*

2(a)   Complete the table below for the function $y = -x + 1$

[1 mark]

x	-1	0	1	2	3
y	2				

2(b)   Plot $y = -x + 1$ on the graph above and hence solve the simultaneous equations

$$y = 4x - 4$$
$$y = -x + 1$$

[3 marks]

_____

_____

$x = $ _____

$y = $ _____

Turn over for next question

4

Turn over ▶

3 The graph below shows the line of the equation $y = x - 0.4$. *(Level 6)*
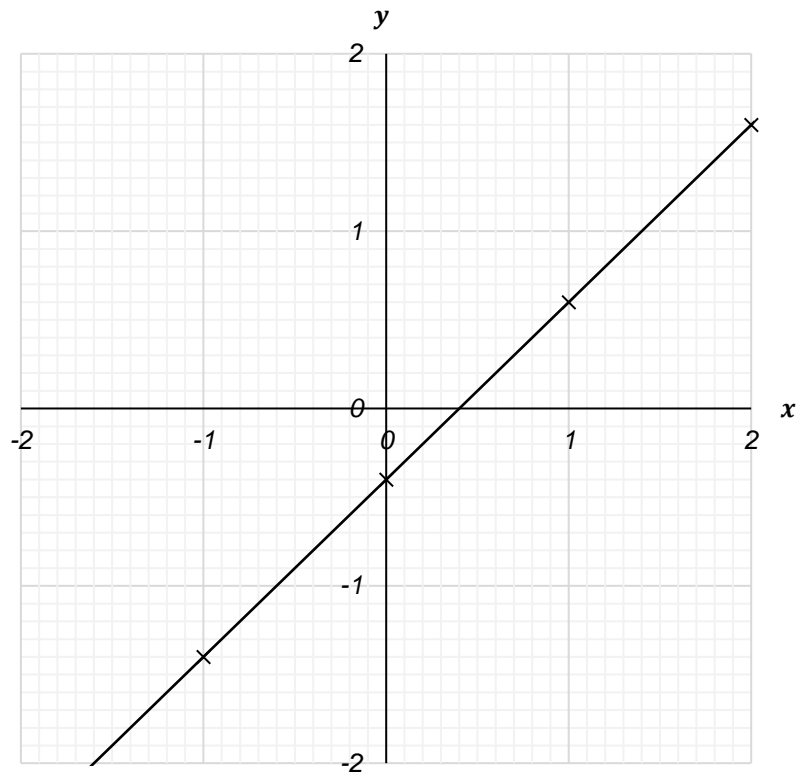
3(a) Complete the following table for the function $y = \frac{1}{4}x + 0.35$

[1 mark]

x	-2	-1	0	1	2
y	-0.15				0.85

3(b) Draw a graph of $y = \frac{1}{4}x + 0.35$ on the graph above and hence solve the simultaneous equations
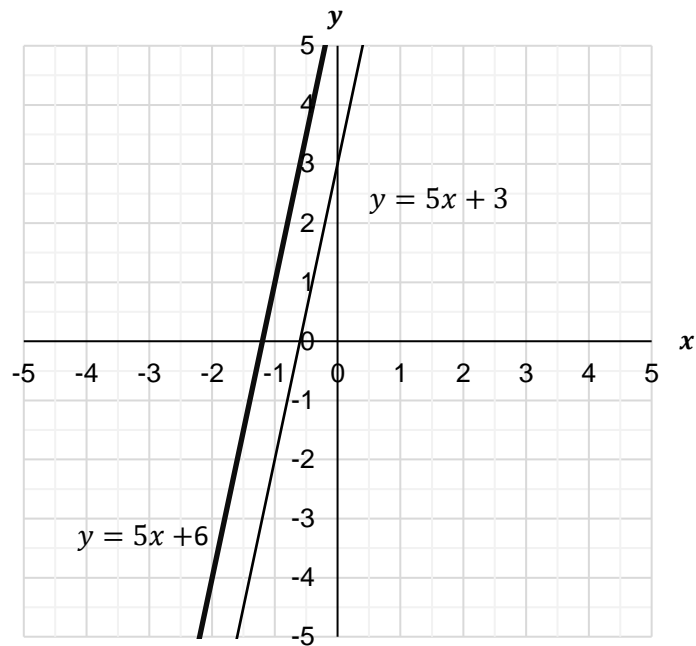
$$y = x - 0.4$$

$$y = \frac{1}{4}x + 0.35$$

[3 marks]

_____

_____

$x =$ _____

$y =$ _____

Turn over ►

4 The graph below shows the line of the equations $y = 5x + 3$ and $y = 5x + 6$. *(Level 6)*

4(a) Using the values below draw the line for the function $y = 2x + 3$ on the above graph.

[1 mark]

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

4(b) Hence solve the simultaneous equations

$$y = 2x + 3$$
$$y = 5x + 6$$

[2 marks]

$x =$ _____

$y =$ _____

4(c) State how you know that the lines $y = 5x + 3$ and $y = 5x + 6$ can not form simultaneous equations.

[1 mark]

_____

_____

Turn over ►

5 ChocZ chocolates are sold at £0.50 a box, plus £4.00 delivery on the total order. *(Level 6)*

Sweets2Go chocolates sell the same box of chocolates for £1.00 each but charge £1.00 for delivery on the total order.

Using the graph below, form and plot two equations representing the two company's sales models.

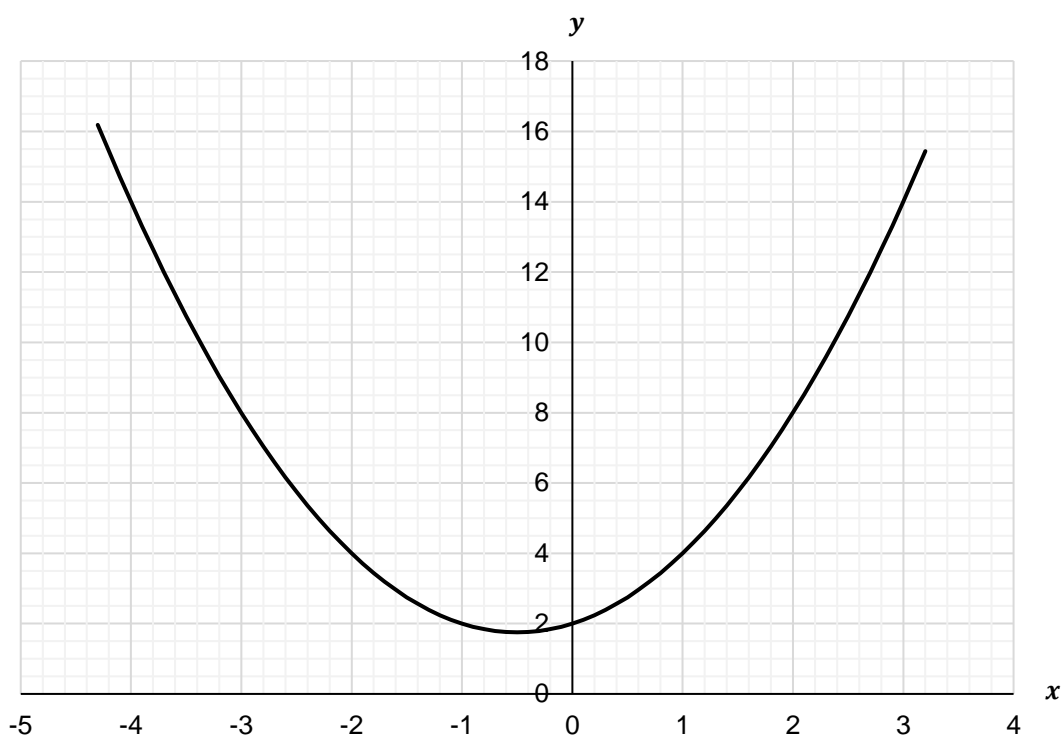State clearly the point at which it becomes cheaper to buy chocolates from ChocZ.

[6 marks]
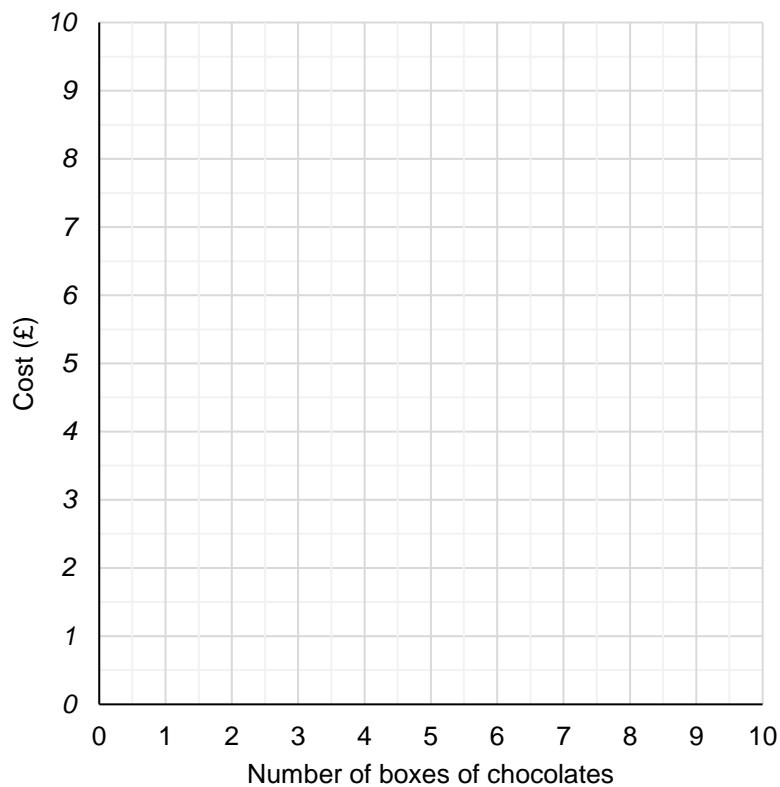
Answer _____

Turn over for next question

Turn over ▶

6 The graph below shows the line of the equation $y = x^2 + x + 2$, for the values of $-4.3 < x < 3.2$ *(Level 7)*

6(a) Complete the following table for the function $y = 0.5x + 8$

[1 mark]

x	-4	-3	-2	-1	0	1	2	3
y								

6(b) Hence estimate solutions to the following simultaneous equations

$$y = x^2 + x + 2$$

$$y = 0.5x + 8$$

A solution obtained algebraically will not be accepted.

[4 marks]

_____

_____

_____

_____

5

END