Name: _____

GCSE (1 – 9)

Solving Simultaneous Equations Graphically

Instructions

- Use **black** ink or ball-point pen.
- Answer all Questions.
- Answer the Questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

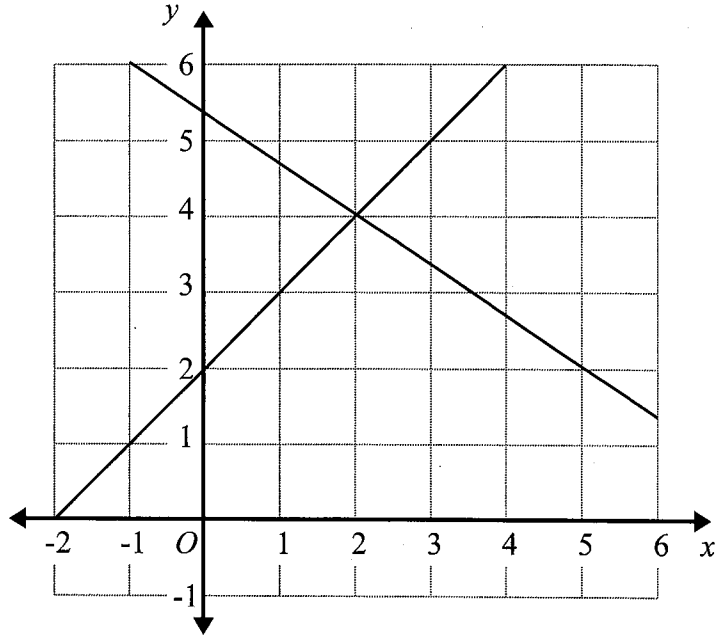
Information

- The marks for each Question are shown in brackets
– *use this as a guide as to how much time to spend on each Question.*

Advice

- Read each Question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every Question.
- Check your answers if you have time at the end

1 The graphs of the straight lines with equations $y = x + 2$ and $2x + 3y = 16$ have been drawn on the grid.



Use the graphs to solve the simultaneous equations

$y = x + 2$
$2x + 3y = 16$

$x = 2, \quad y = 4$

(Total for Question 1 is 2 marks)

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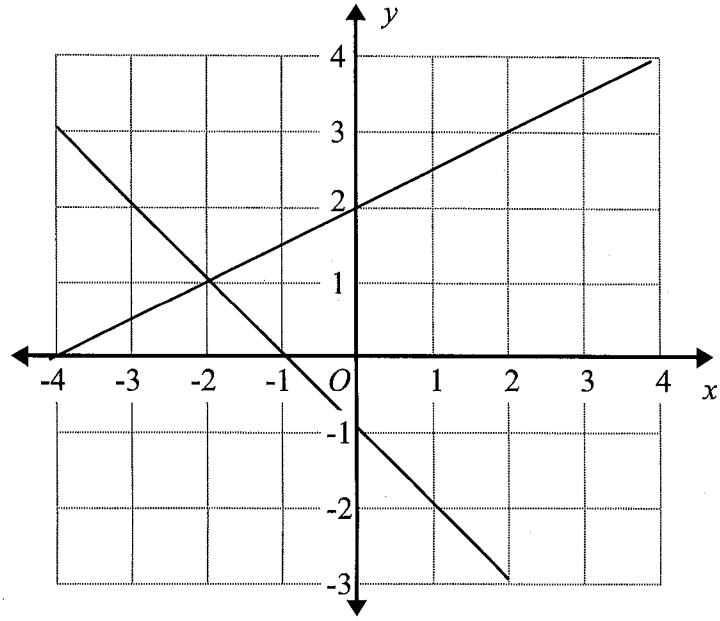
2 The graphs of the straight lines with equations $2y - x = 4$ and $x + y = -1$ have been drawn on the grid.



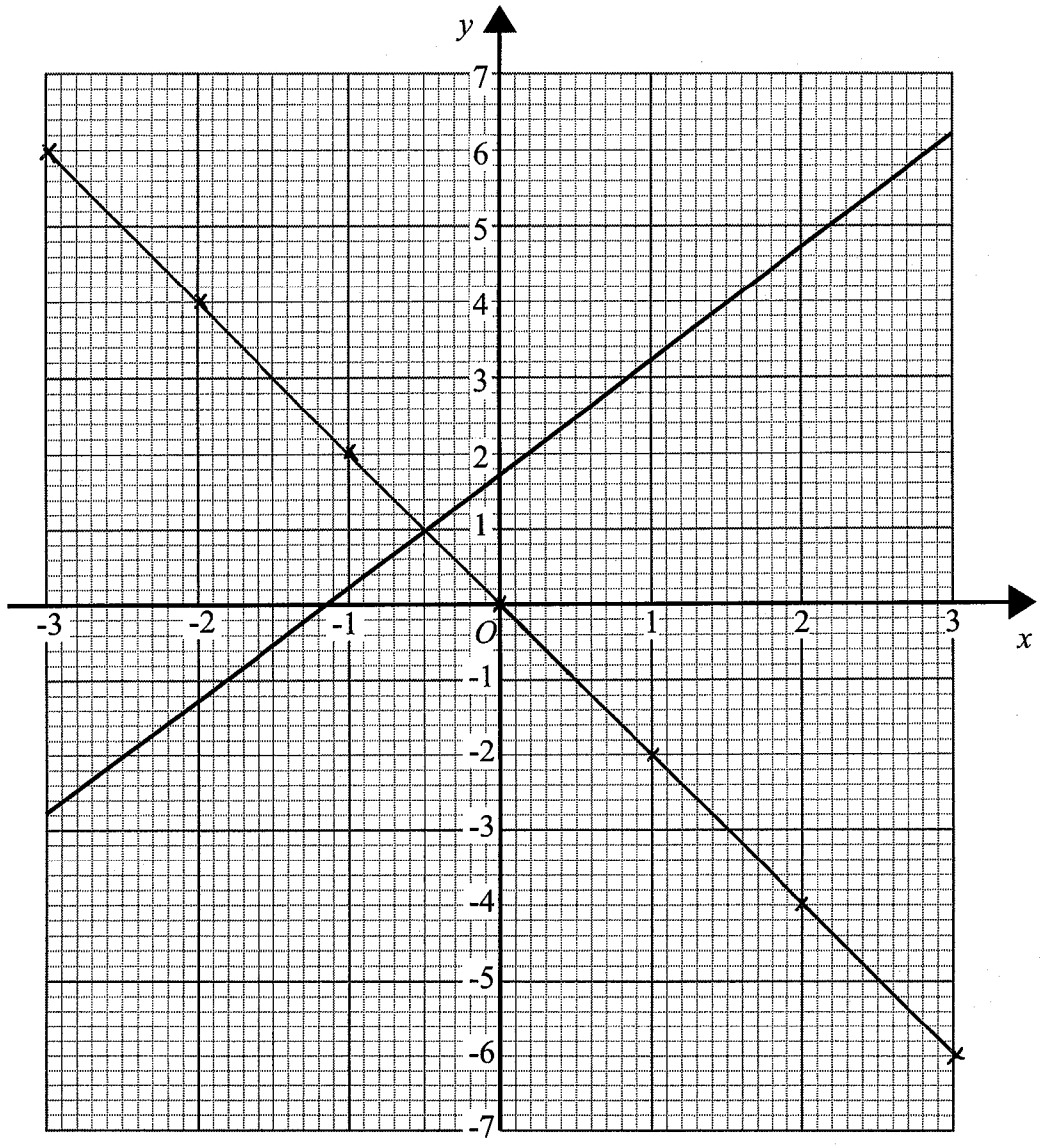
Use the graphs to solve the simultaneous equations

$2y - x = 4$
$x + y = -1$

$x = -2, \quad y = 1$

(Total for Question 2 is 2 marks)

3 The graph of $4y - 6x = 7$ is drawn on the grid.



(a) On the grid , draw the graph of $y = -2x$ **(2)**

x	-3	-2	-1	0	1	2	3
y	6	4	2	0	-2	-4	-6

(b) Use the graphs to solve the simultaneous equations

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

$x =$ −0.5

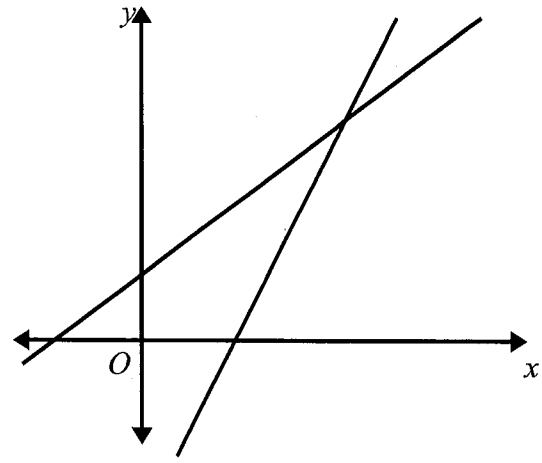
$y =$ 1

(2)

(Total for Question 3 is 4 marks)

4 The diagram shows two straight lines.
The equation of the lines are $y = 4x - 5$ and $y = 2x + 1$

Work out the coordinates of the point where the line intersect.



$y = 4x - 5$

$y = 2x + 1$

$4x - 5 = 2x + 1$

$-2x \qquad -2x$

$2x - 5 = 1$

$+5 \qquad +5$

$2x = 6$

$x = 3$

$y = 2(3) + 1$

$= 6 + 1$

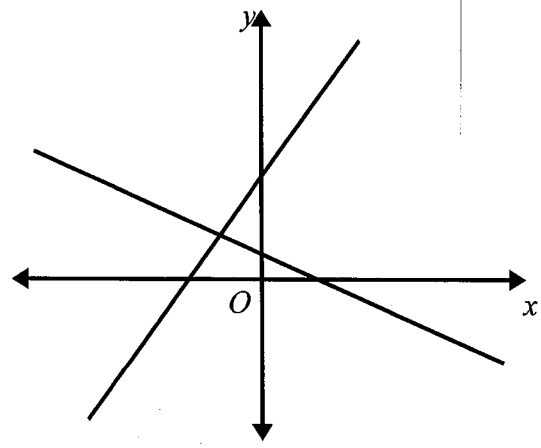
$= 7$

(3, 7)

(Total for Question 4 is 3 marks)

5 The diagram shows two straight lines.
The equation of the lines are $y = 2x + 3$ and $y = -\frac{2}{3}x + 1$

Work out the coordinates of the point where the line intersect.



$y = 2x + 3$

$y = -\frac{2}{3}x + 1$

$2x + 3 = -\frac{2}{3}x + 1$

$6x + 9 = -2x + 3$

$+2x \qquad +2x$

$8x + 9 = 3$

$-9 \qquad -9$

$8x = -6$

$x = \frac{-6}{8} = -\frac{3}{4} = -0.75$

$y = 2\left(-\frac{3}{4}\right) + 3$

$= -\frac{6}{4} + 3$

$= -1.5 + 3$

$= 1.5$

(−0.75, 1.5)

(Total for Question 5 is 3 marks)