

Name: _____

GCSE (1 – 9)

Inequalities Regions

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.**

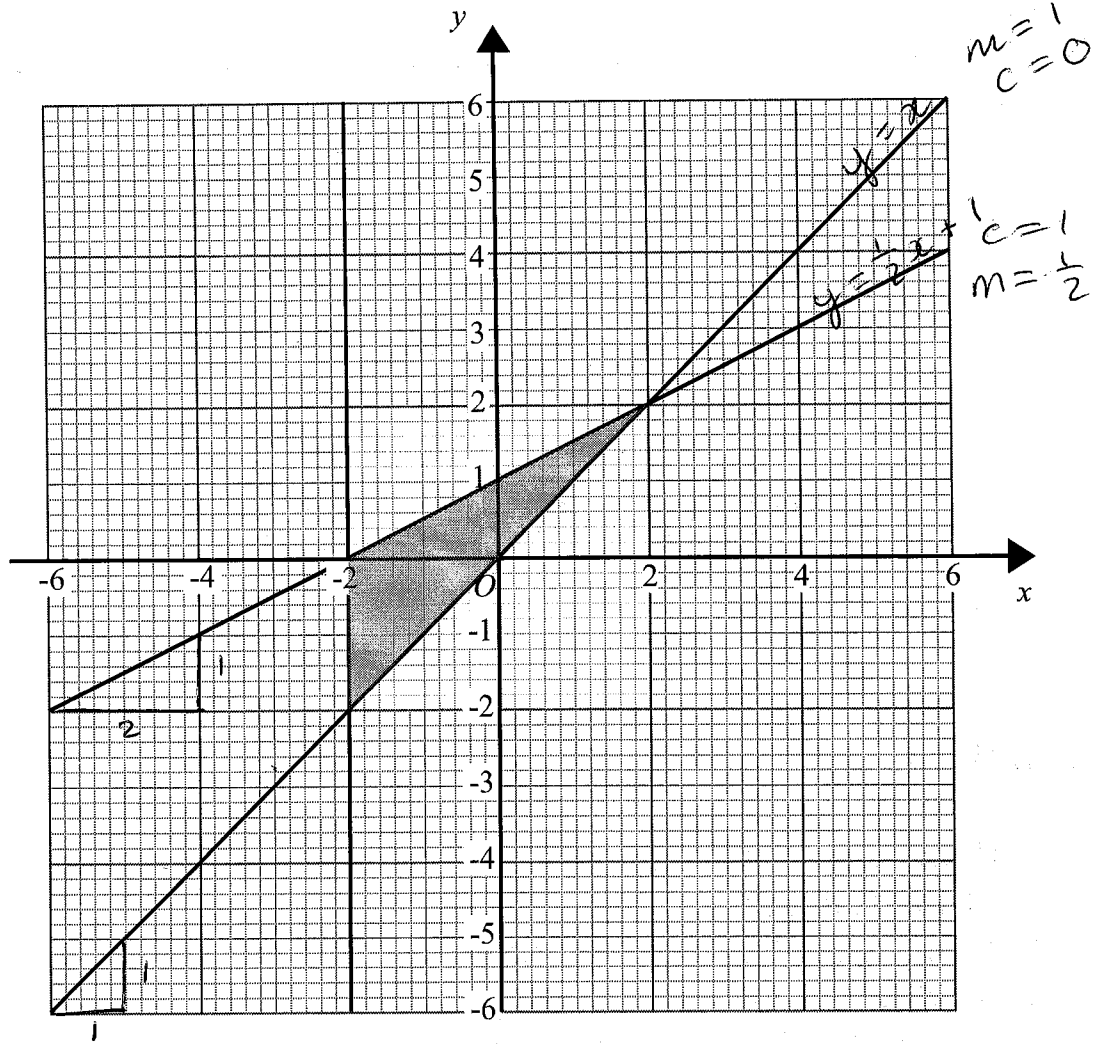
Information

- 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



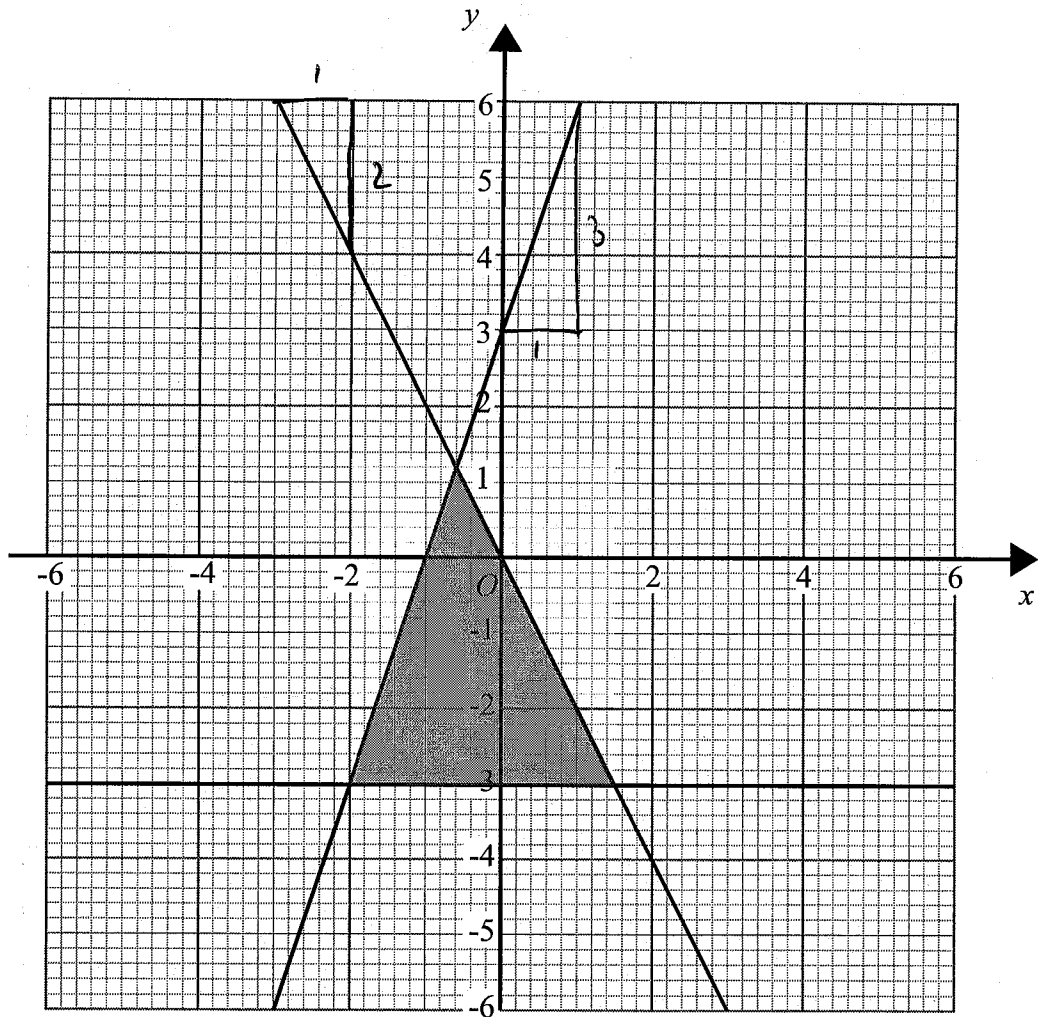
Write down the three inequalities that define the shaded region

$$x \geq -2$$

$$y \geq x$$

$$y \leq \frac{1}{2}x + 1$$

(Total for Question 1 is 4 marks)



Write down the three inequalities that define the shaded region

$$y \geq -3$$

$$m = 3$$

$$c = 3$$

$$y \leq 3x + 3$$

$$m = -2$$

$$c = 0$$

$$y \leq -2x$$

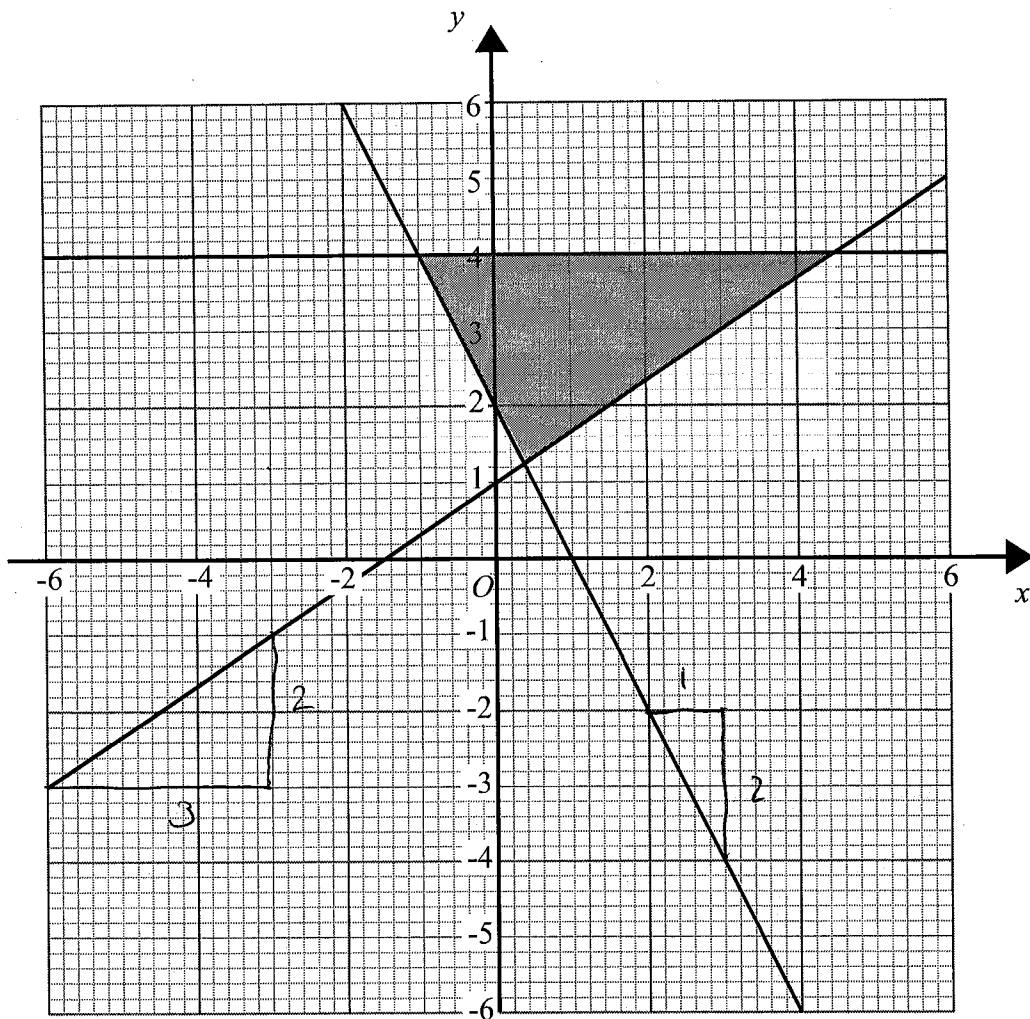
$$y \geq -3$$

$$y \leq 3x + 3$$

$$y \leq -2x$$

(Total for Question 2 is 4 marks)

3



Write down the three inequalities that define the shaded region

$$y \leq 4$$

$$m = \frac{2}{3}$$

$$m = -2$$

$$c = 1$$

$$y = -2x + 2$$

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

$$y \geq -2x + 2$$

$$y \geq \frac{2}{3}x + 1$$

$$y \leq 4$$

$$y \geq \frac{2}{3}x + 1$$

$$y \geq -2x + 2$$

(Total for Question 3 is 4 marks)

4 On the grid shade the region that satisfies all these inequalities

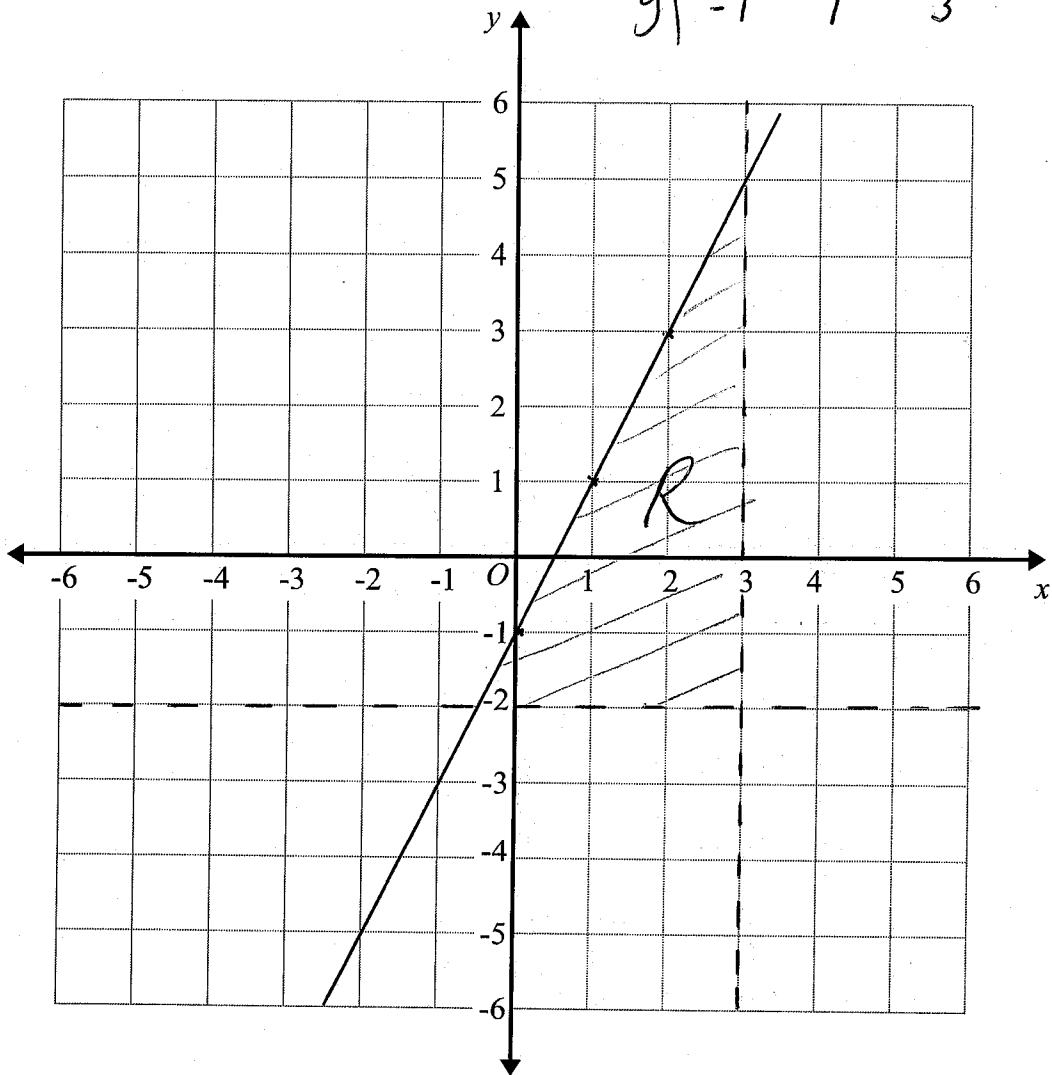
$x < 3$

$y > -2$

$y \leq 2x - 1$

Label the region **R**.

x	0	1	2
y	-1	1	3



(Total for Question 4 is 3 marks)

5 On the grid shade the region that satisfies all these inequalities

$$x + y < 4$$

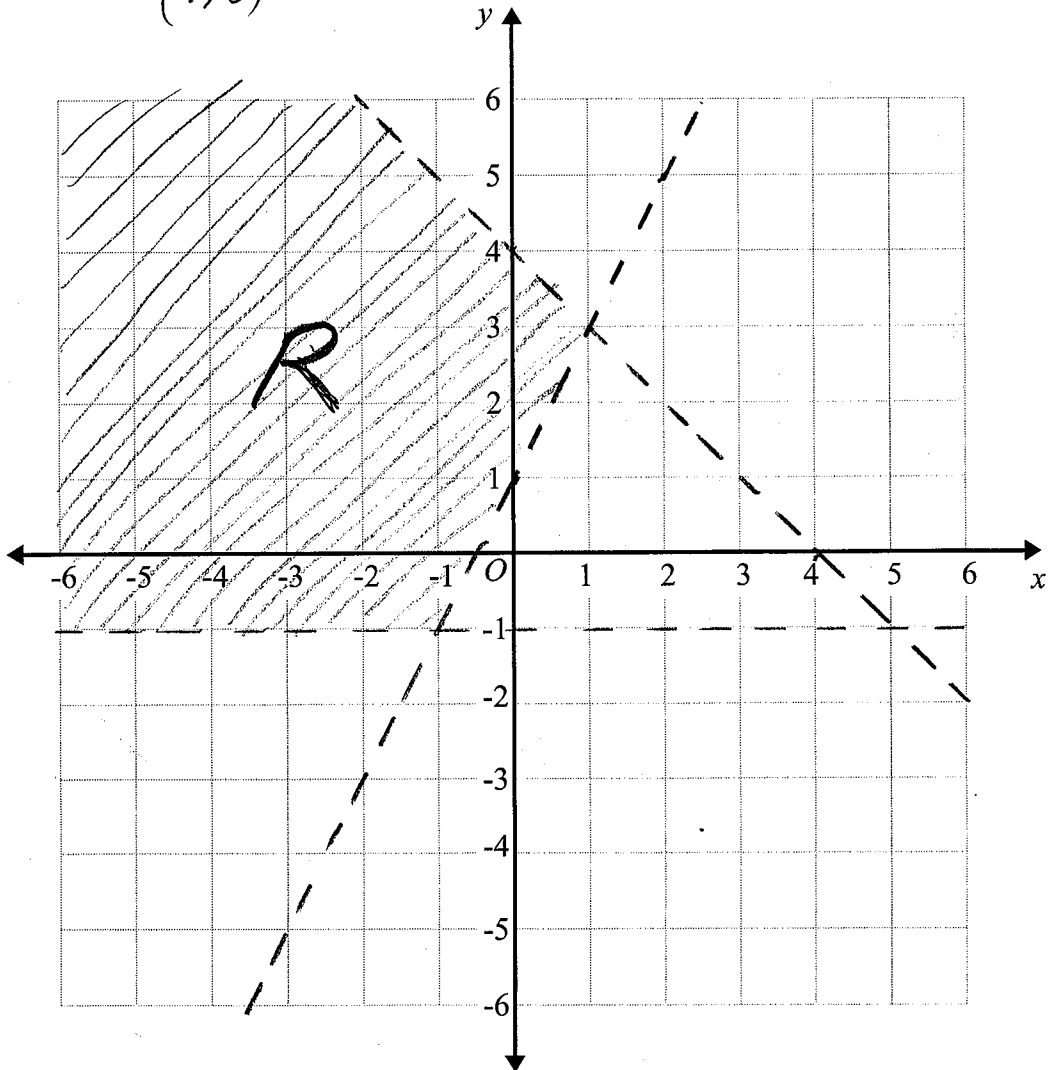
$$y > 2x + 1$$

$$y > -1$$

Label the region R. $(0, 4)$

$(4, 0)$

x	0	1	2
y	1	3	5



(Total for Question 5 is 3 marks)

6 On the grid shade the region that satisfies all these inequalities

$$y \geq x - 1$$

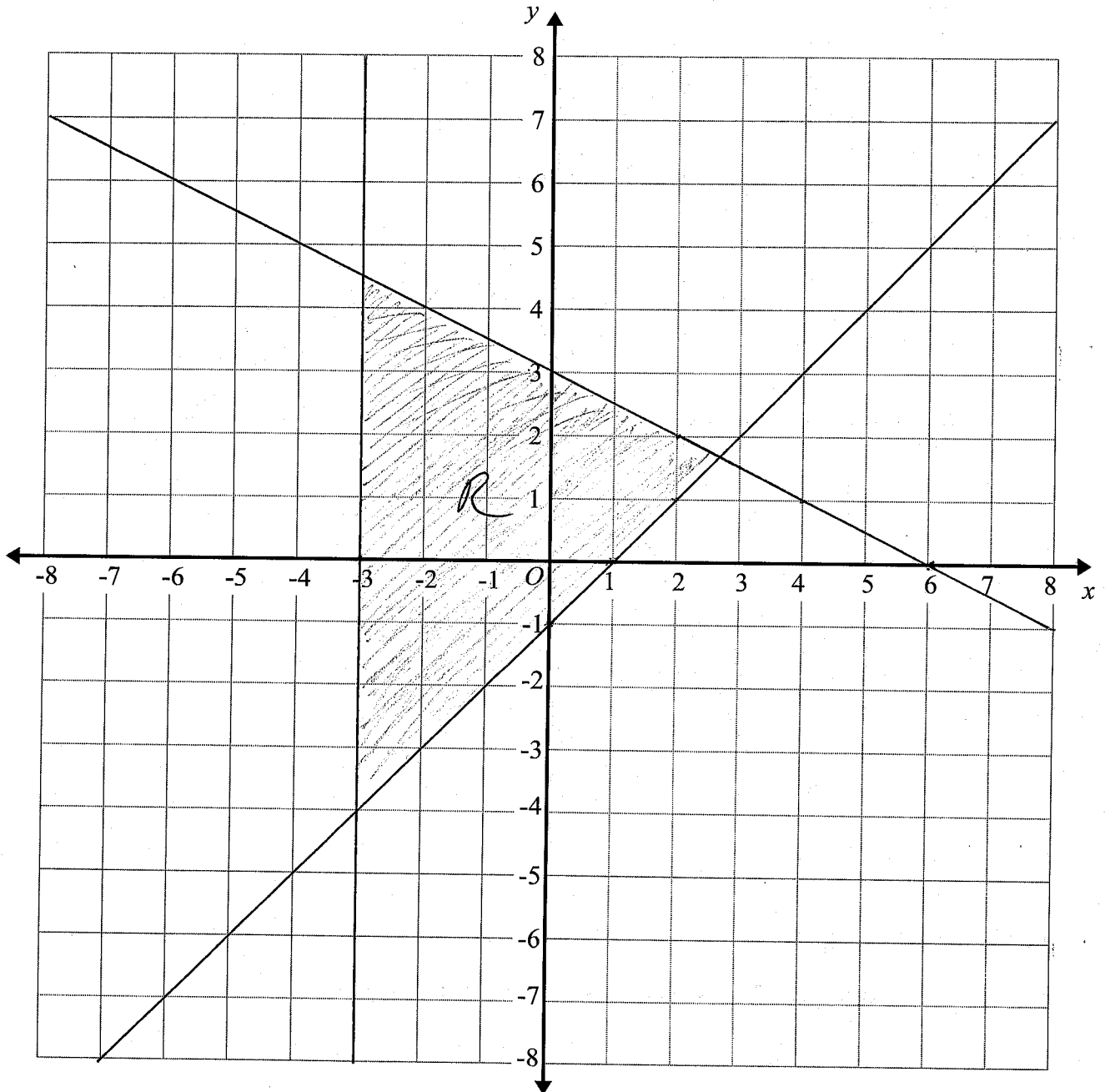
$$x \leq 6 - 2y$$

$$x \geq -3$$

Label the region **R**.

$$\begin{array}{r|rrr} x & 0 & 1 & 2 \\ \hline y & -1 & 0 & 1 \end{array}$$

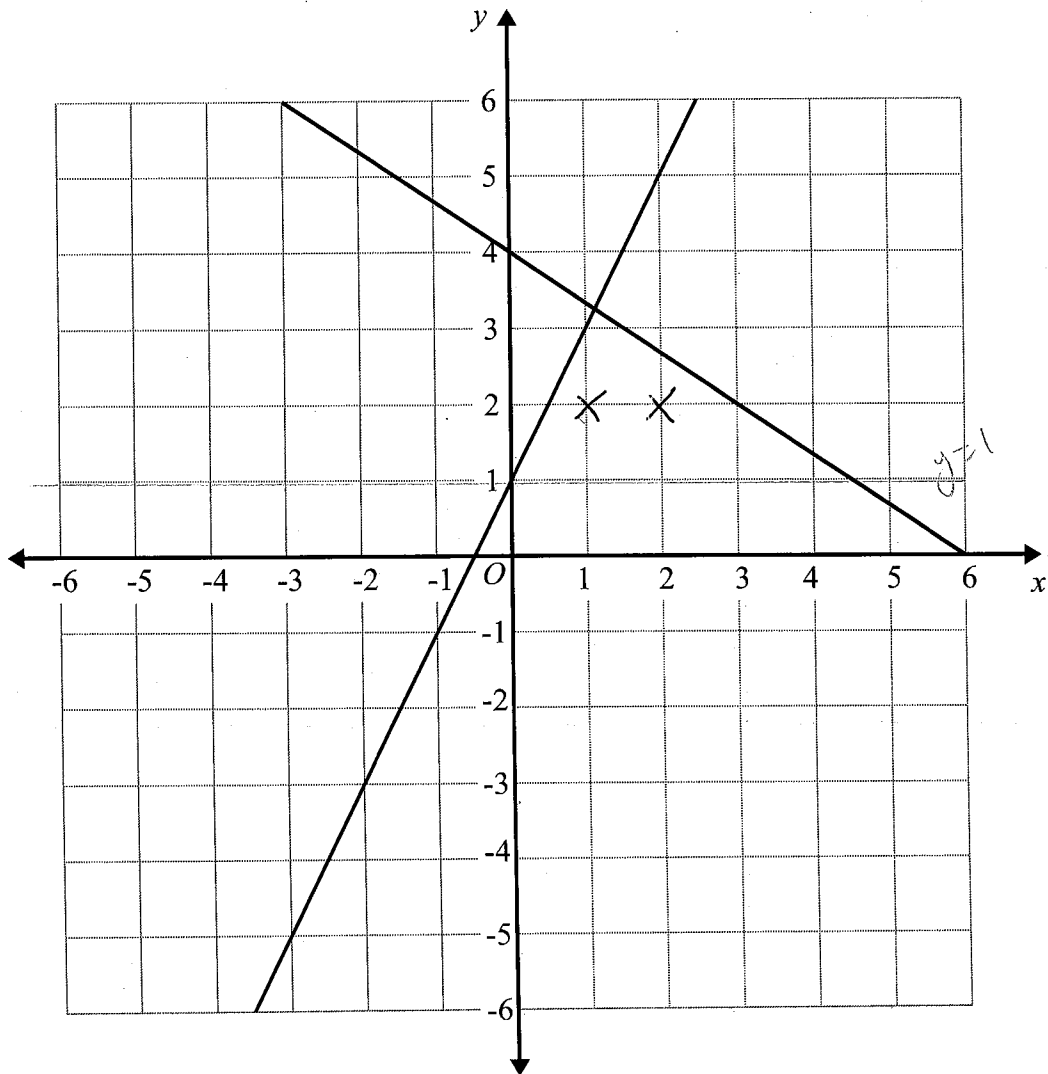
$$\begin{array}{r|rrr} y & 0 & 1 & 2 \\ \hline x & 6 & 4 & 2 \end{array}$$



(Total for Question 6 is 3 marks)

7

The graphs of the straight lines with equations $y = 2x + 1$ and $3y + 2x = 12$ have been drawn on the grid.



x and y are both integers.

Mark with a cross (\times) all of the points that satisfies all the inequalities

$$y < 2x + 1$$

$$3y + 2x < 12$$

$$y > 1$$

(Total for Question 7 is 2 marks)