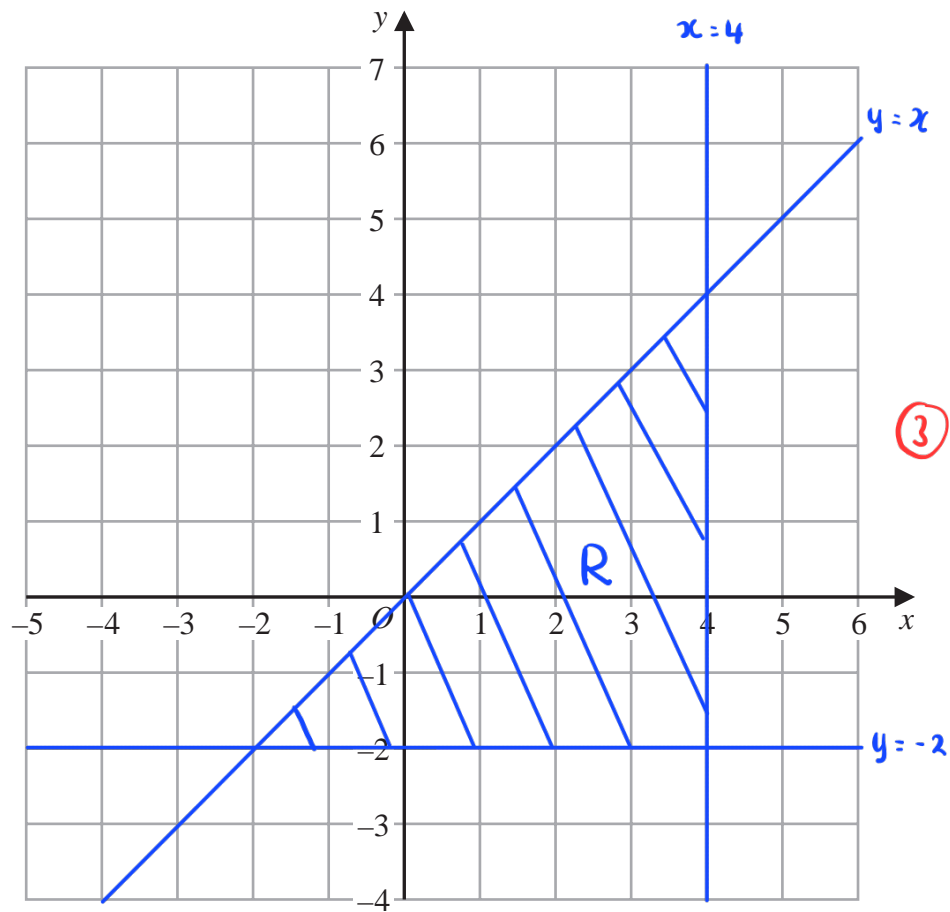**1** Show, by shading on the grid, the region that satisfies all three of the inequalities

$$x \leqslant 4 \qquad \text{and} \qquad y \geqslant -2 \qquad \text{and} \qquad y \leqslant x$$

Label the region **R**.

(Total for Question 1 is 3 marks)

2 (a) Write down the integer values of x that satisfy the inequality $-2 < x \leqslant 4$

$-1, 0, 1, 2, 3, 4$ ②

(2)

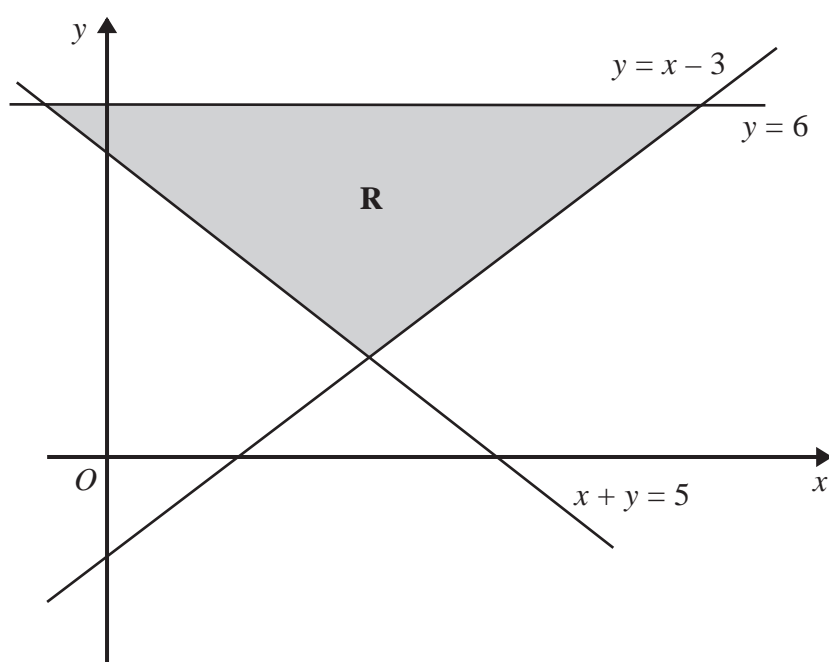The region **R**, shown shaded in the diagram, is bounded by three straight lines.

(b) Write down the three inequalities that define the region **R**.
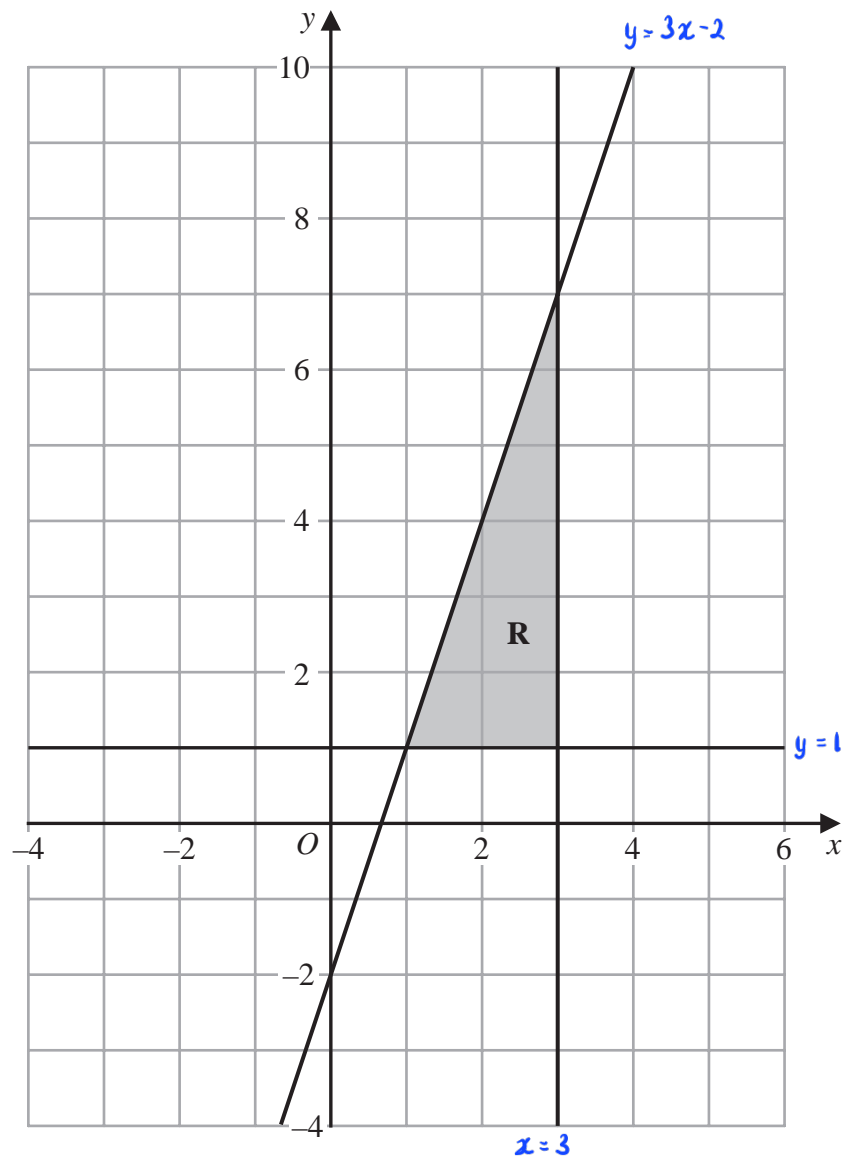
$y \leqslant 6$

$x + y \geqslant 5$ ②

$y \geqslant x - 3$

(2)

(Total for Question 2 is 4 marks)

3 The shaded region **R**, shown in the diagram below, is bounded by the straight line with equation $y = 3x - 2$ and by two other straight lines.

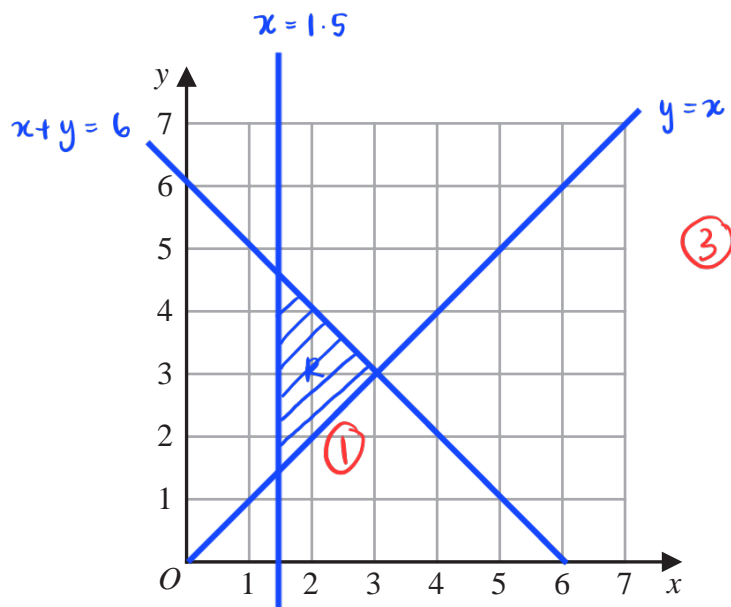Write down the three inequalities that define region **R**.

$x \leqslant 3$ ①

$y \geqslant 1$ ①

$y \leqslant 3x - 2$ ①

(Total for Question 3 is 3 marks)

4

(a) On the grid, draw and **label** the straight line with equation

(i) $x = 1.5$

(ii) $y = x$

(iii) $x + y = 6$

(3)

(b) Show, by shading on the grid, the region that satisfies **all three** of the inequalities

$$x \geqslant 1.5 \qquad y \geqslant x \qquad x + y \leqslant 6$$

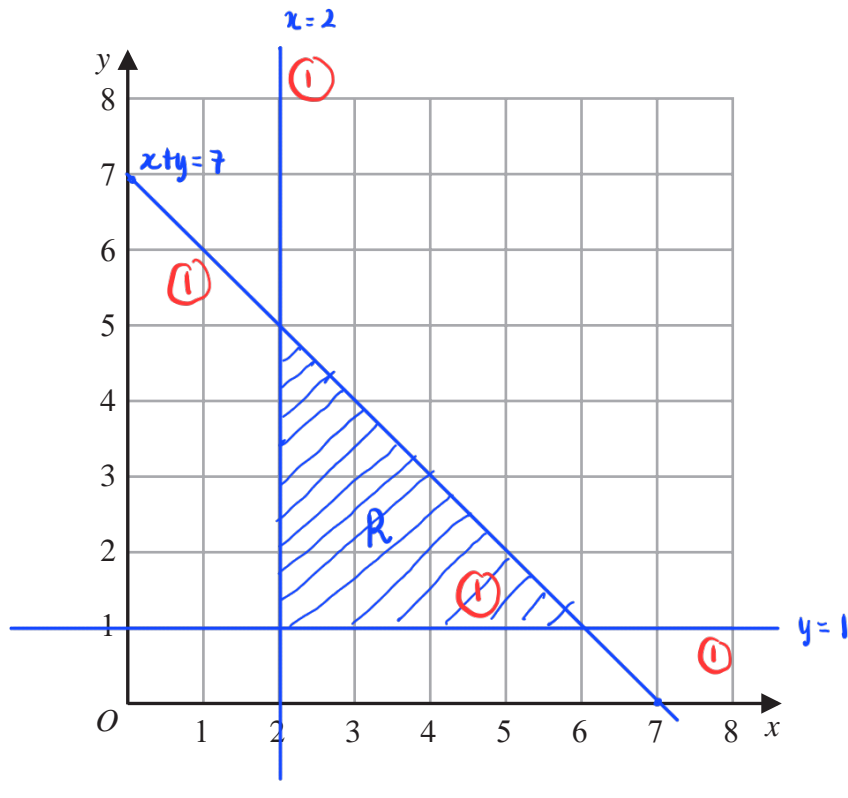Label the region **R**.

(1)

(Total for Question 4 is 4 marks)

5 (a) On the grid, draw and label with its equation the straight line with equation

(i) $y = 1$ (ii) $x = 2$ (iii) $x + y = 7$

(3)

(b) Show, by shading on the grid, the region that satisfies **all three** of the inequalities

$$y \geqslant 1 \qquad x \geqslant 2 \qquad x + y \leqslant 7$$

Label the region **R**.

(1)

(Total for Question 5 is 4 marks)

6 (b) Show, by shading on the grid, the region defined by **all three** of the inequalities

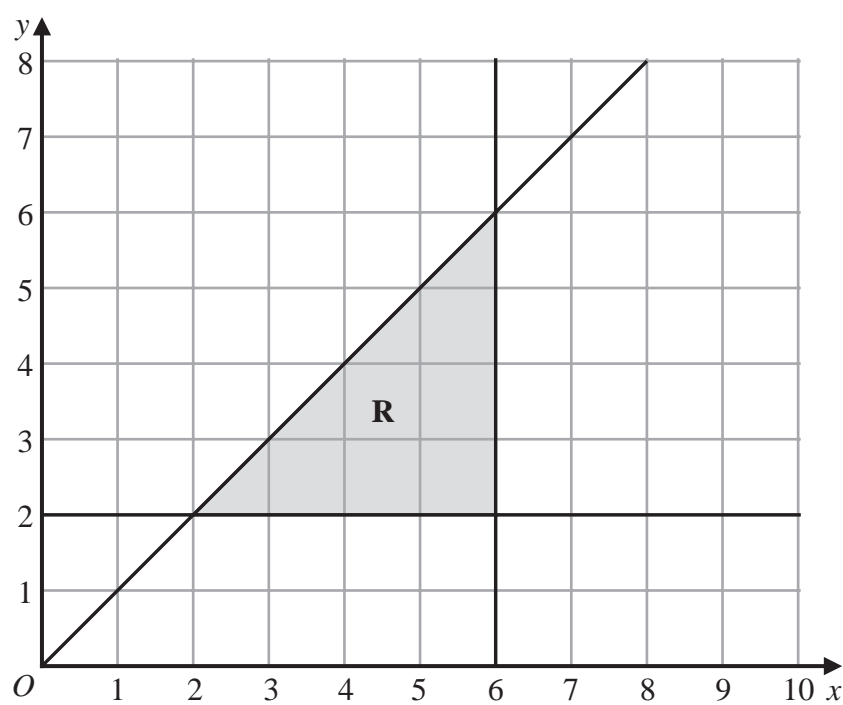$$x \leqslant 6 \qquad\qquad y \geqslant 2 \qquad\qquad y \leqslant x + 1$$

Label the region **R**

(3)
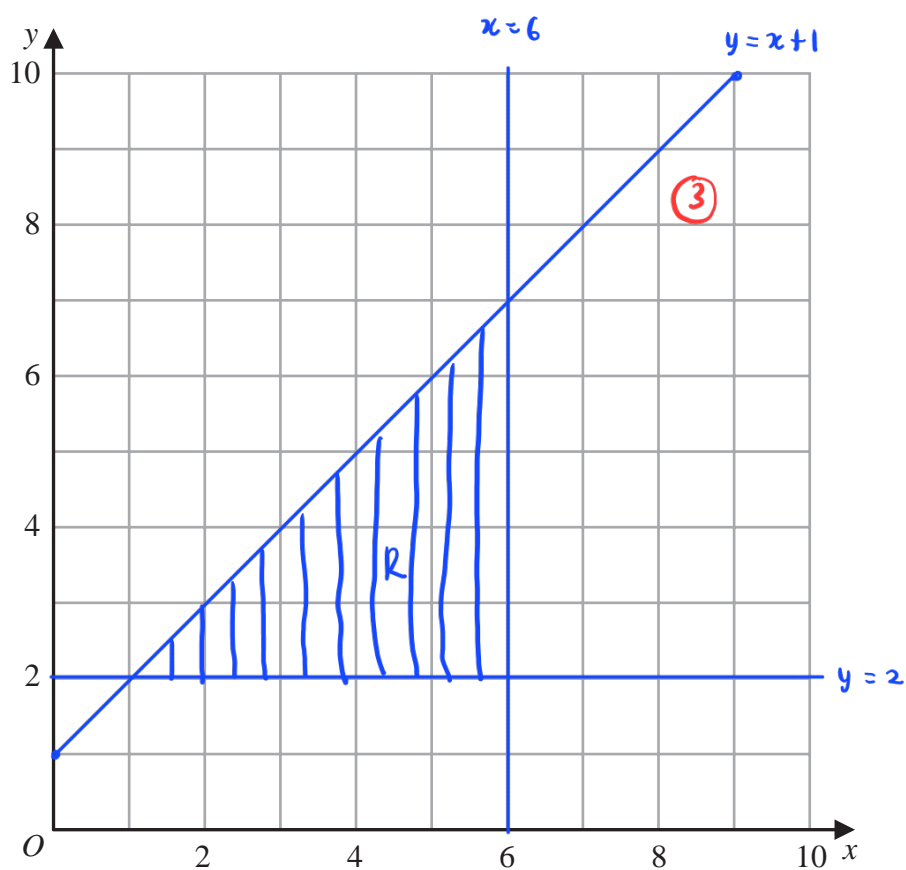
(Total for Question 6 is 3 marks)

7 (b) Write down the three inequalities that represent the shaded region **R**
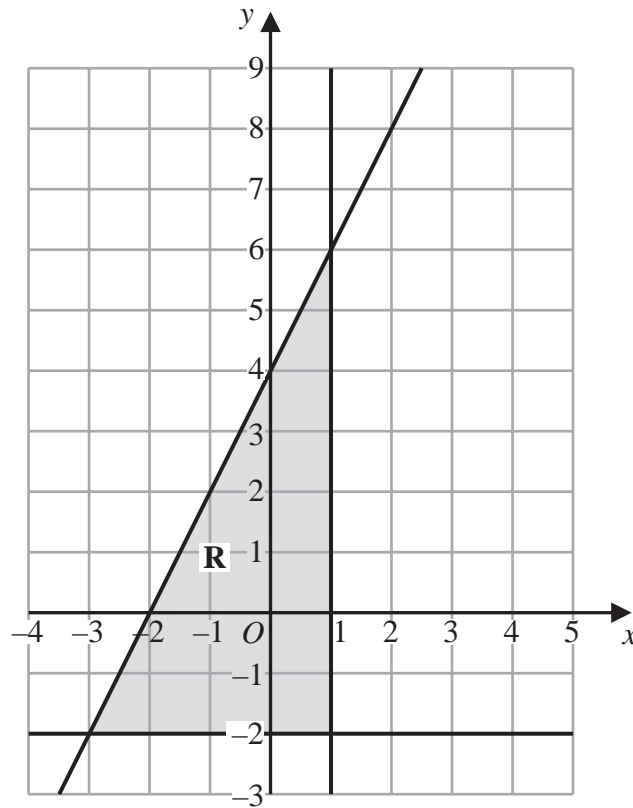
$x \leq 6$ ③

$y \geq 2$

$y \leq x$

(3)

(Total for Question 7 is 3 marks)

8

The region **R**, shown shaded in the diagram, is bounded by three straight lines.

Find the inequalities that define **R**

Take point $(1, 6)$: $6 = m(1) + 4$

$$m = 2$$

①

$$y = 2x + 4$$

.... $x \leqslant 1$ ①

.... $y \geqslant -2$ ①

.... $y \leqslant 2x + 4$ ①

(Total for Question 8 is 4 marks)