INEQUALITY GRAPHS

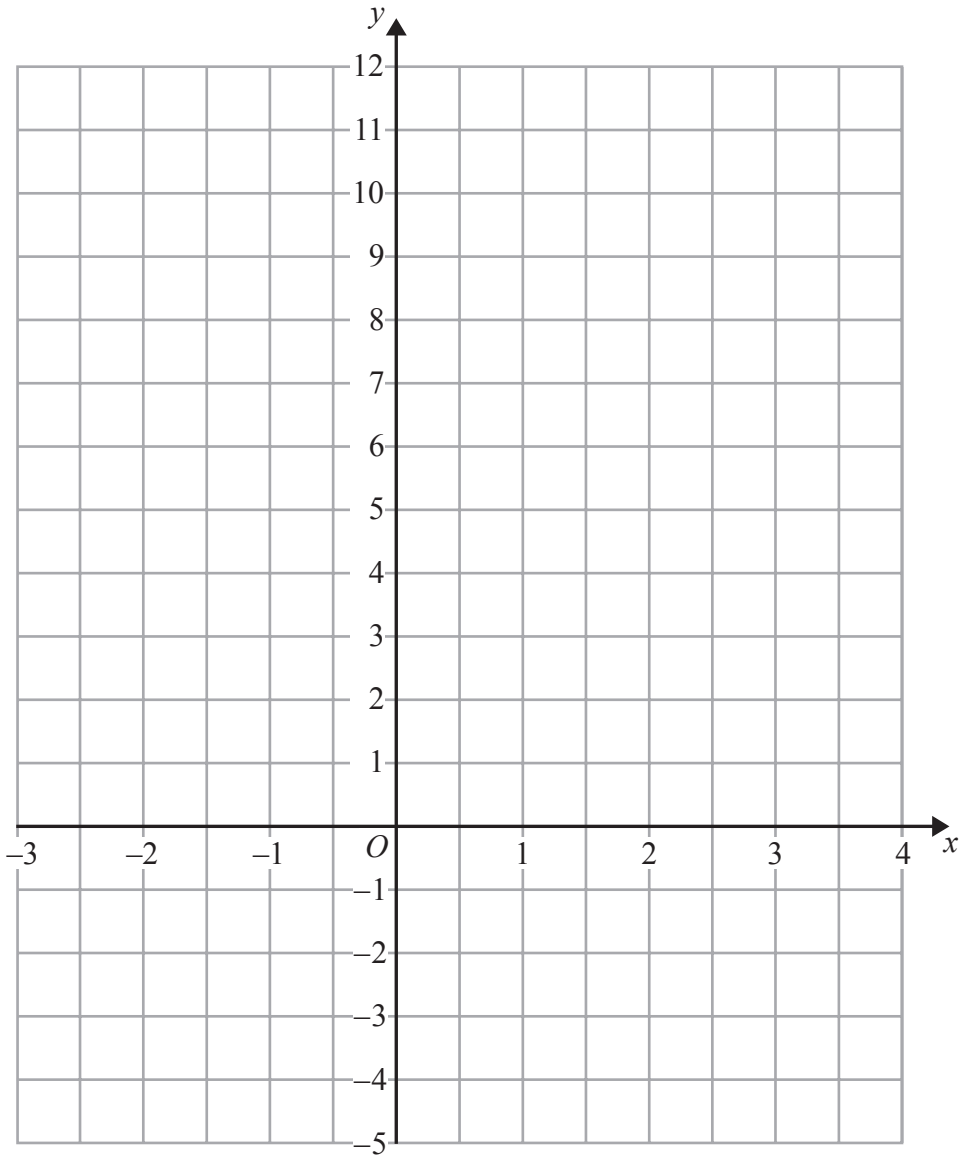
[ESTIMATED TIME: 45 minutes]

GCSE

(+ IGCSE) EXAM QUESTION PRACTICE

1. **[5 marks]**

(a) On the grid, draw the graph of $y = 3x + 2$ for values of x from –2 to 3



(3)

(b) Mark with a cross (×) a point on the grid that satisfies both the inequalities

$$x > 2 \text{ and } y > 3x + 2$$

Label this point P.

(2)

2. **[3 marks]**

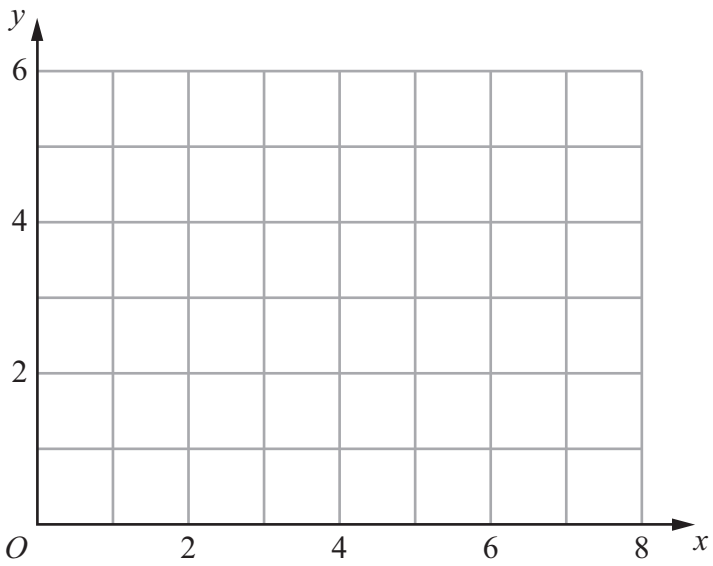
Show, by shading on the grid, the region defined by all three of the inequalities

$x \leqslant 5$

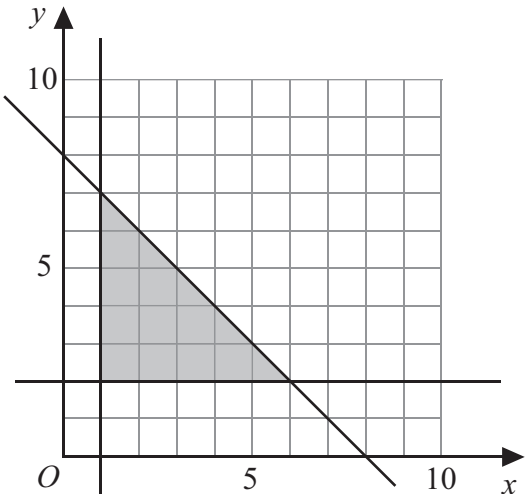
$y \geqslant 3$

$y \leqslant x$

Label your region **R**.



3. **[3 marks]**



Write down the 3 inequalities that define the shaded region.

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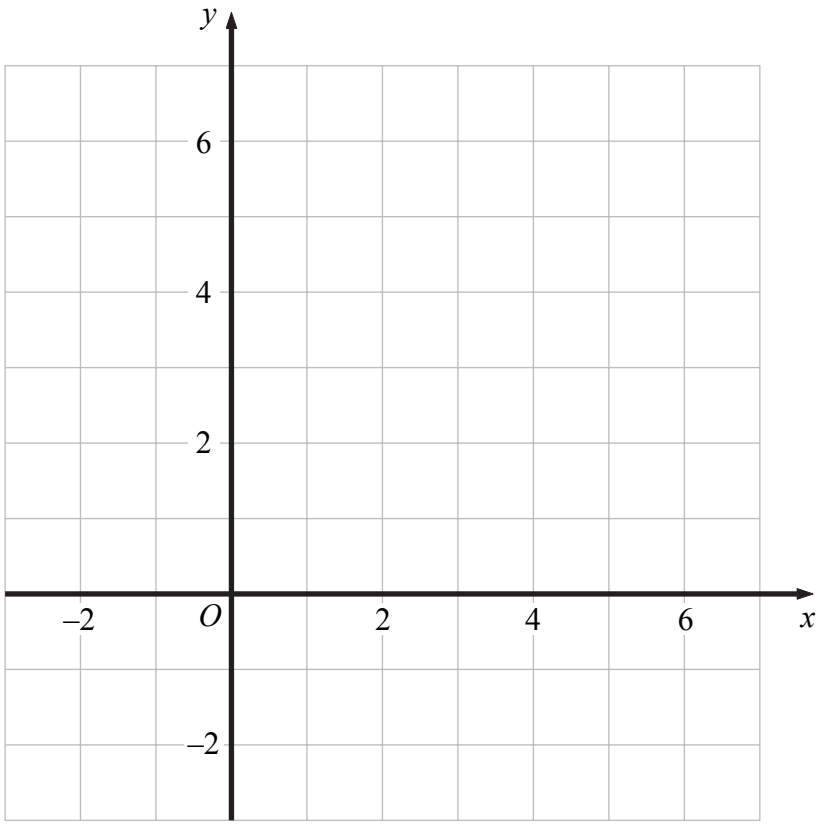
(3)

4. **[4 marks]**

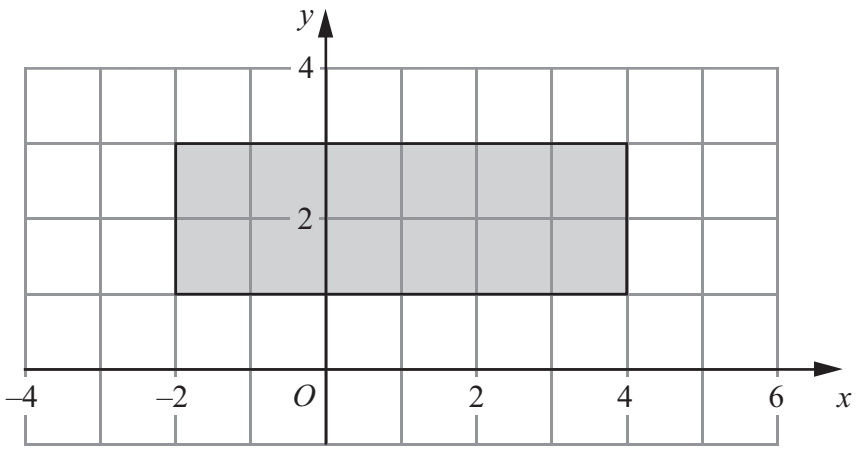
Show, by shading on the grid, the region which satisfies all three of these inequalities.

$y \leqslant 5$ $y \leqslant 2x$ $y \geqslant x + 1$

Label your region **R**.



5. **[3 marks]**



Write down inequalities to fully define the shaded region.

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(3)

6. **[6 marks]**

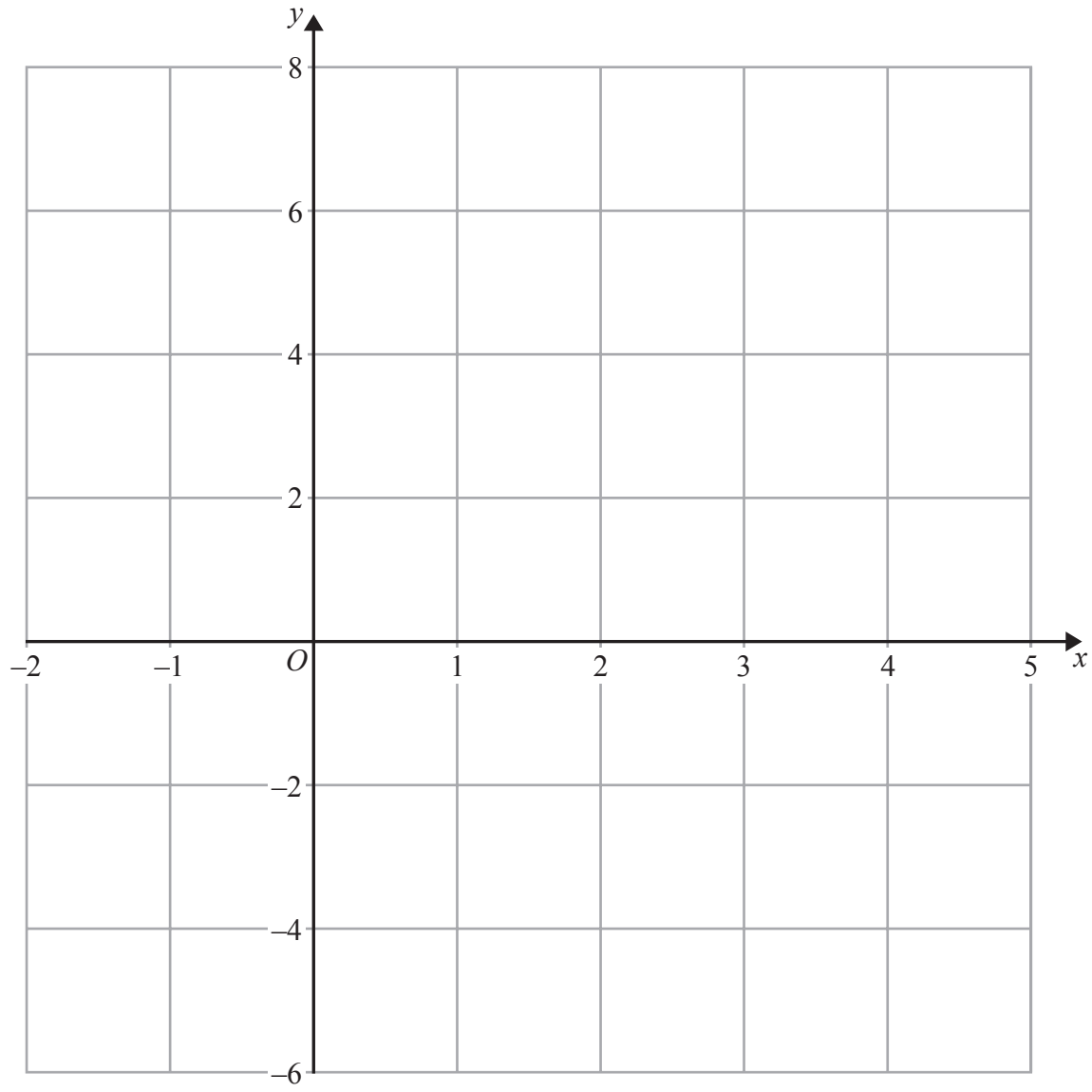
(a) Complete the table of values for $2x + y = 4$

x	–1	2	4
y			

(2)

(b) On the grid, draw the graph of $2x + y = 4$ for values of x from –1 to 4

(2)



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

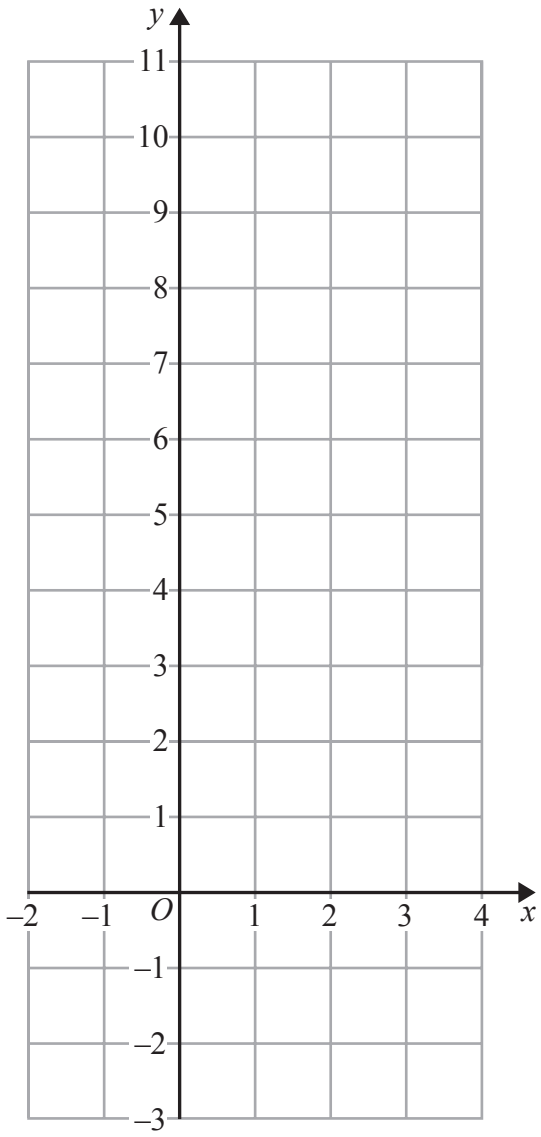
$$x \geqslant -1, \quad y \geqslant 2 \quad \text{and} \quad 2x + y \leqslant 4$$

Label the region **R**.

(2)

7. **[5 marks]**

(a) On the grid, draw the graph of $y = 2x + 3$ for values of x from –2 to 4



(3)

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

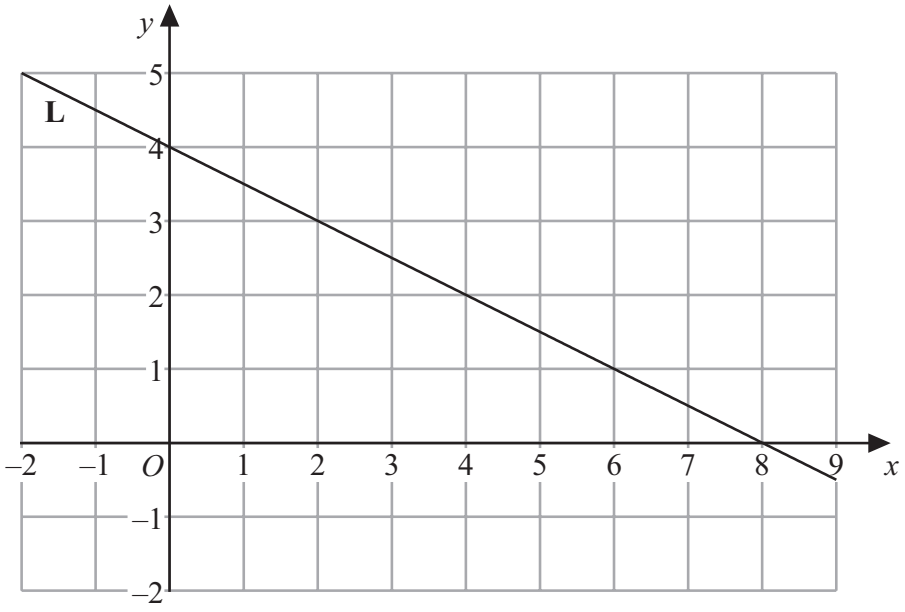
$$x \leqslant 3 \quad \text{and} \quad y \geqslant 2 \quad \text{and} \quad y \leqslant 2x + 3$$

Label your region **R**.

(2)

8. **[6 marks]**

(a)



Find the equation of the line **L**.

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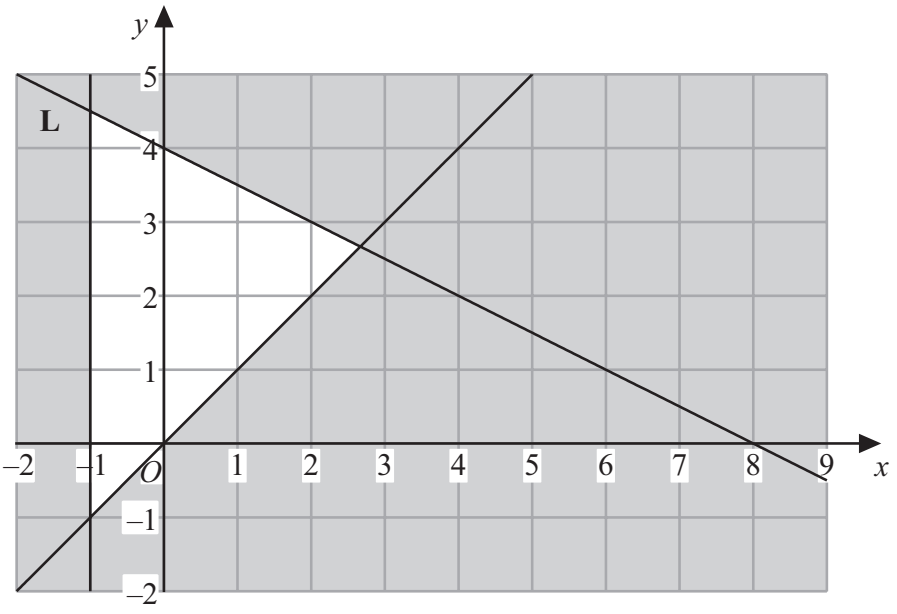
(3)

(b) Find the three inequalities that define the **unshaded** region in the diagram below.



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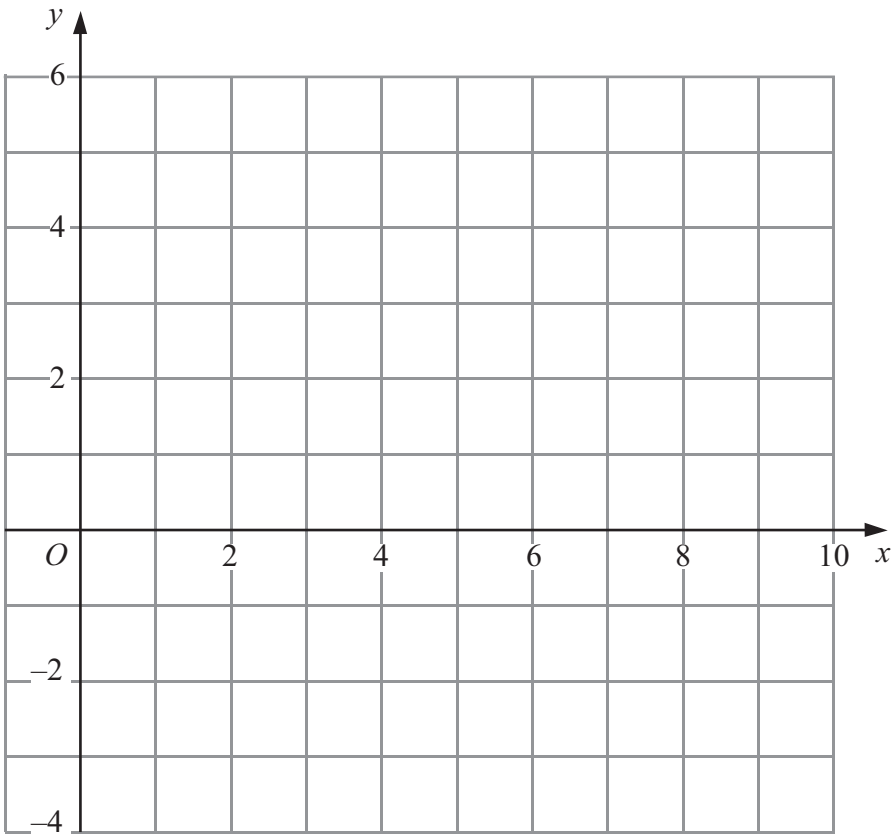
(3)

9. **[5 marks]**

(a) On the grid, draw the graph of $2x - 3y = 6$ from $x = 0$ to $x = 9$

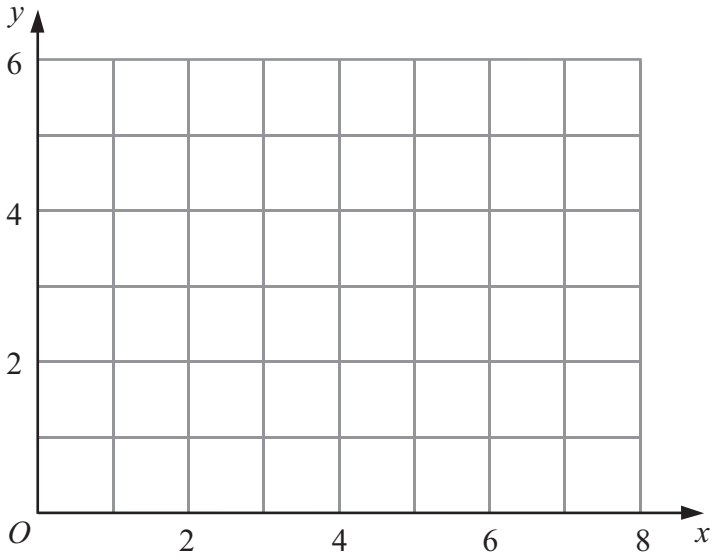


(2)

(b) On the grid, show by shading the region which satisfies the inequalities

$3 \leqslant x \leqslant 6$ **and** $2 \leqslant y \leqslant 4$

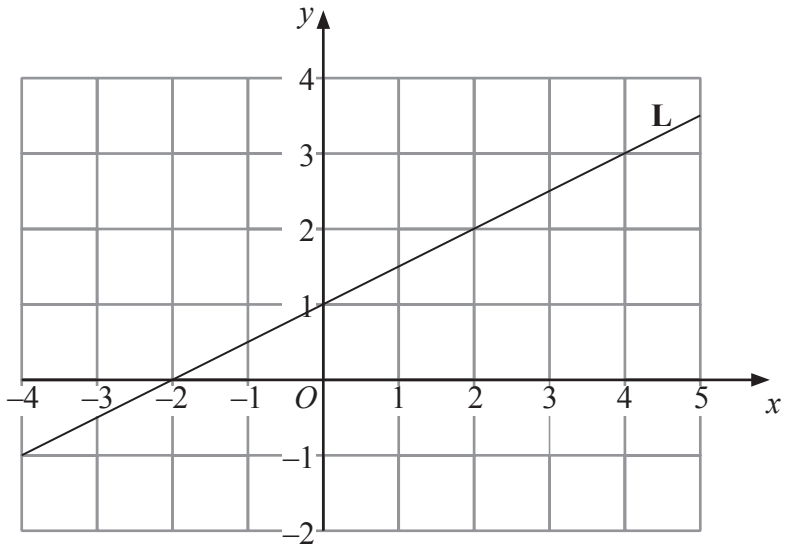
Label your region **R**.



(3)

10. **[7 marks]**

A line **L** passes through the points (0, 1) and (4, 3).



(a) (i) Find the gradient of the line **L**.

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(ii) Find the equation of the line **L**.

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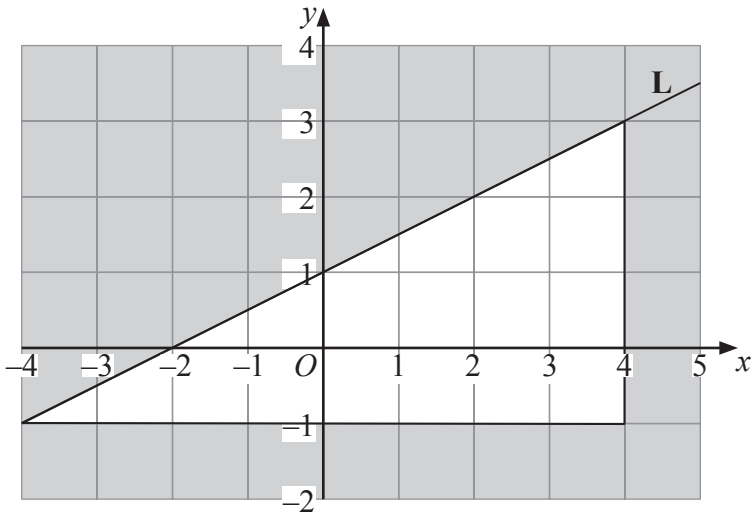
(b)



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

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(3)