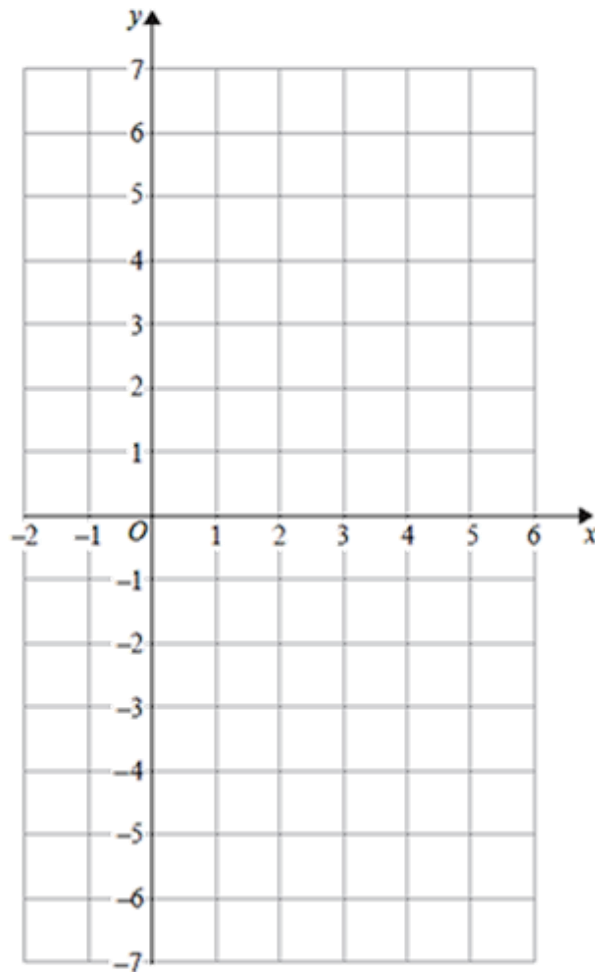


Linear programming

1. Jan 2017 (3H) Q8

(a) On the grid, draw the graph of $y = -2x + 4$ for values of x from -1 to 5



(4)

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

$$y \leq -2x + 4$$

$$y \geq -4$$

$$x \geq 1$$

Label your region R.

(3)

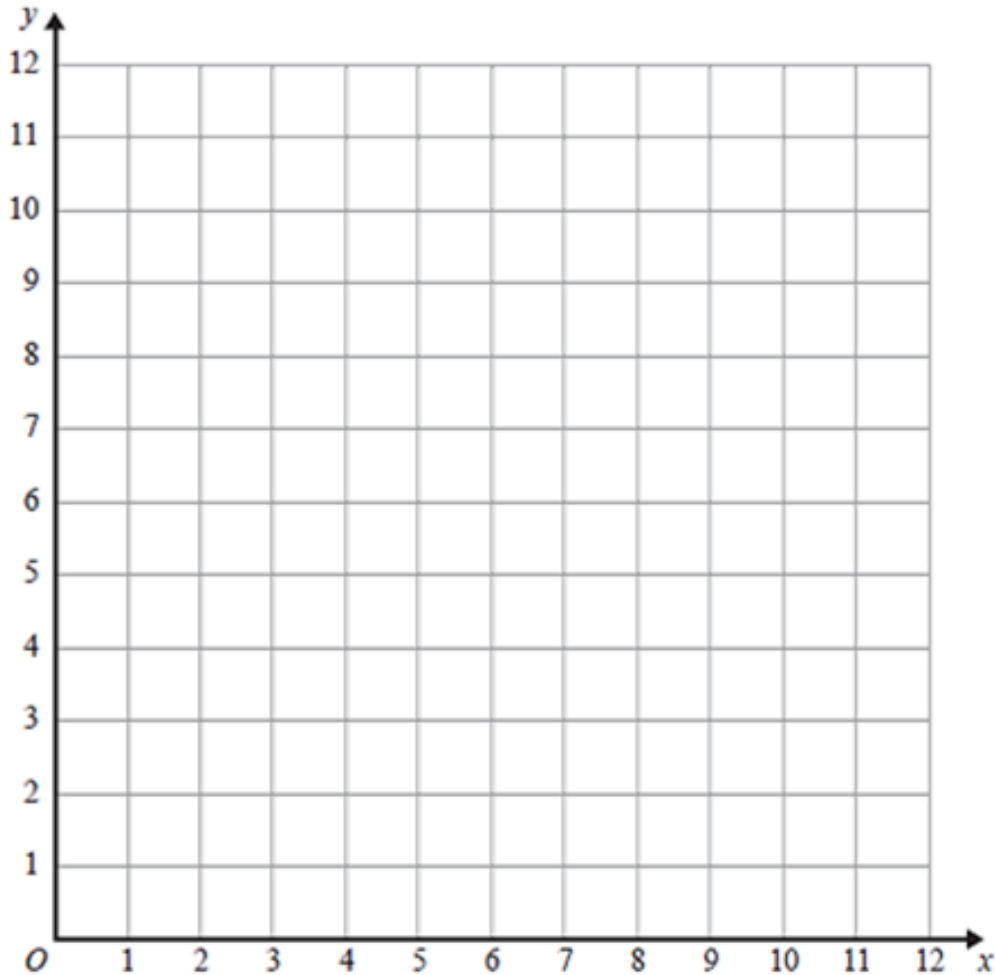
(Total for Question 8 is 7 marks)

2. June 2017 (3HR) Q13

On the grid, show by shading the region defined by the inequalities

$$y > 5 \quad \text{and} \quad y < 2x + 1 \quad \text{and} \quad x + y < 10$$

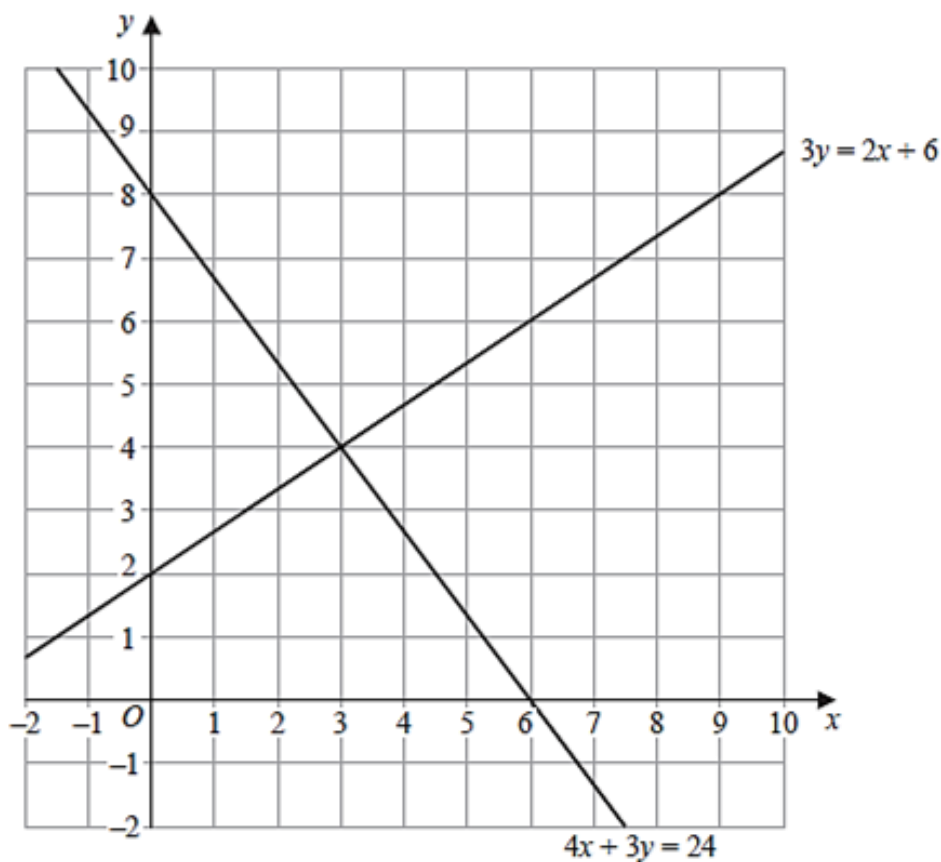
Label your region R.



(Total for Question 13 is 3 marks)

3. June 2018 (1H) Q12

The diagram shows two straight lines drawn on a grid.



(a) Write down the solution of the simultaneous equations

$$\begin{aligned} 3y &= 2x + 6 \\ 4x + 3y &= 24 \end{aligned}$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$
(1)

(b) Show, by shading on the grid, the region defined by all five of the inequalities

$$x \geq 0 \quad y \geq 0 \quad x + y \geq 4 \quad 3y \leq 2x + 6 \quad 4x + 3y \leq 24$$

Label the region R.

(3)

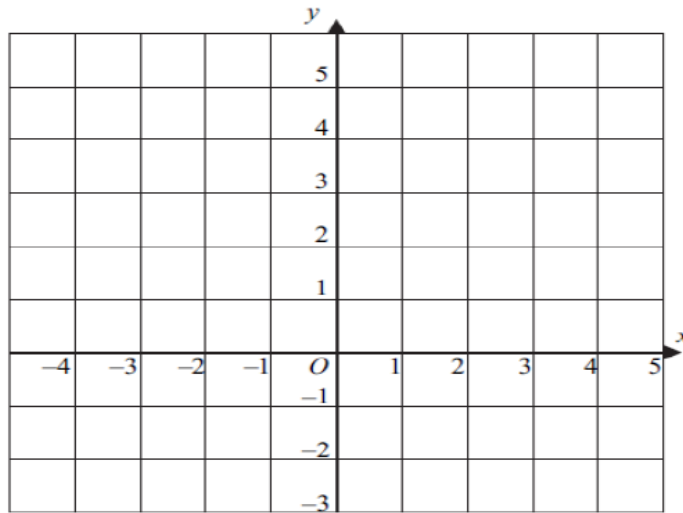
4. Nov 2004 3H Q6

- a. On the grid, draw the line $x + y = 4$.
- b. On the grid, show clearly the region defined by the inequalities

$$x + y \geq 4$$

$$x \leq 3$$

$$y < 4$$



5. Nov 2005 3H Q13

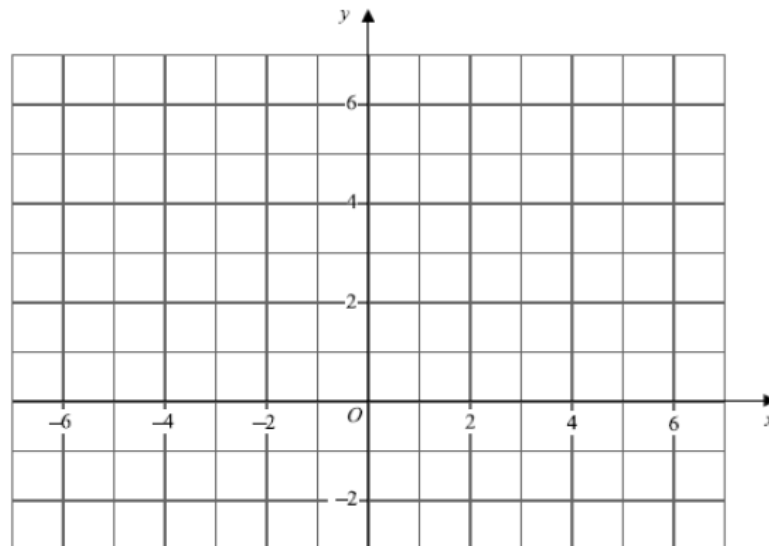
Show, by shading on the grid, the region which satisfies all three of these inequalities.

$$x \geq 1$$

$$y \geq x$$

$$x + 2y \leq 6$$

Label your region **R**.

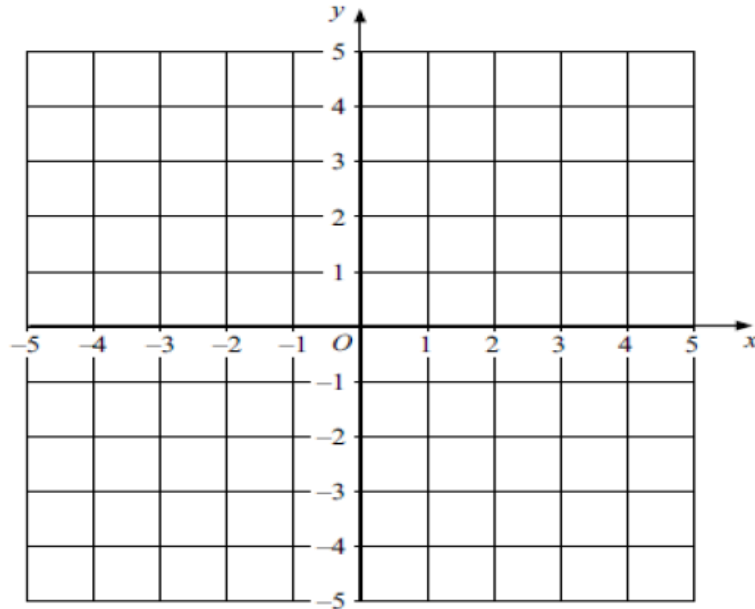


6. May 2006 3H Q9

Show, by shading on the grid, the region which satisfies these inequalities

$$1 \leq x \leq 3 \text{ and } -4 \leq y \leq -2$$

Label your region **R**.

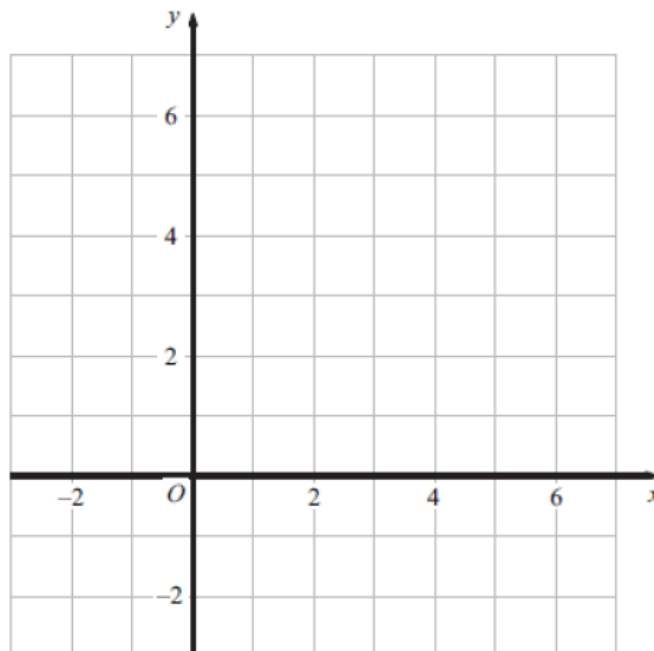


7. May 2007 3H Q13

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

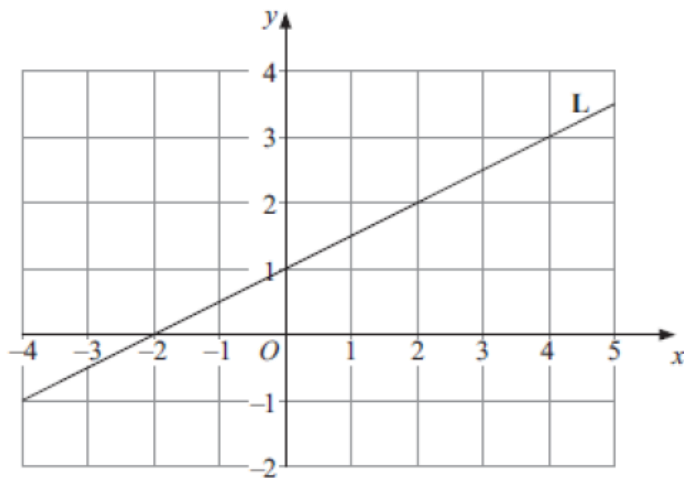
$$y \leq 5 \quad y \leq 2x \quad y \geq x + 1$$

Label your region **R**.



8. May 2008 4H Q14

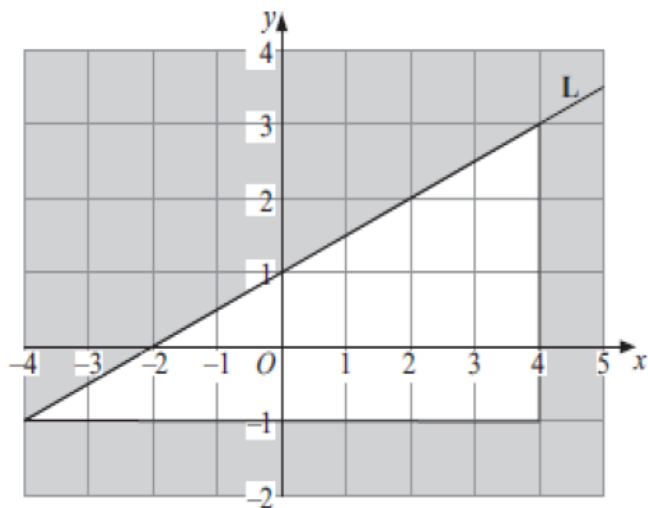
A line **L** passes through the points (0, 1) and (4, 3).



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

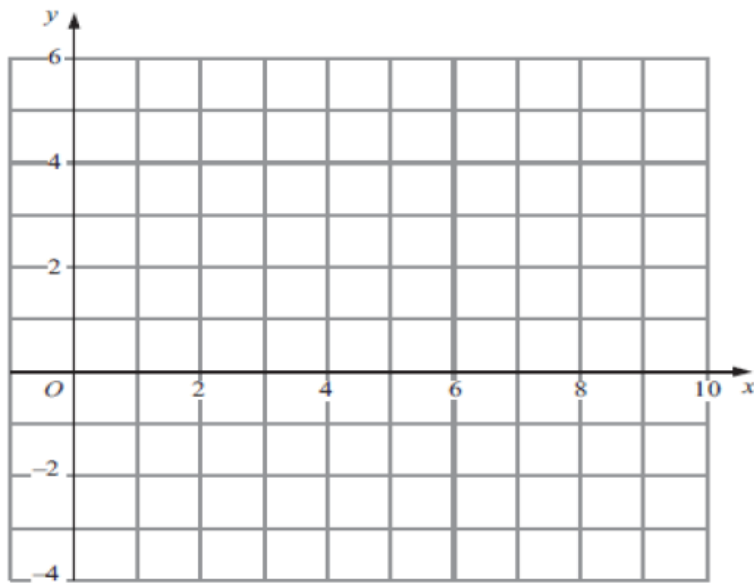
(ii) Find the equation of the line **L**.

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

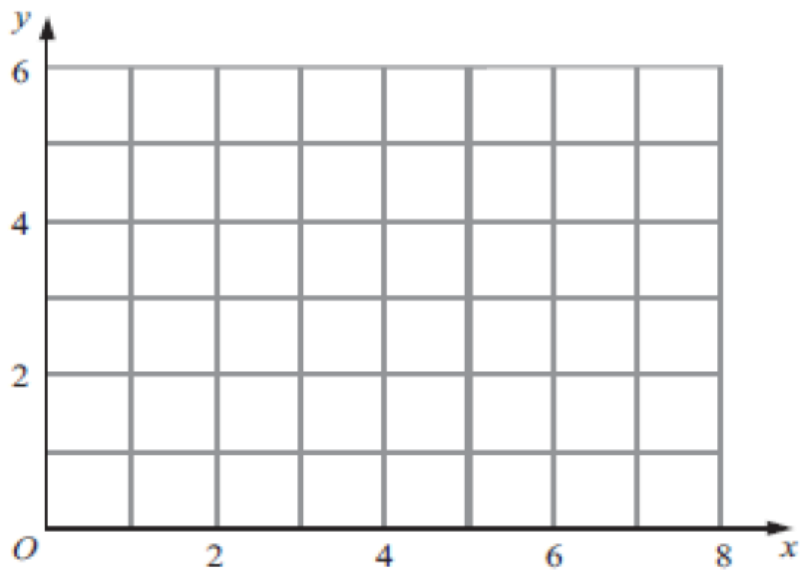


9. Nov 2009 4H Q9

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

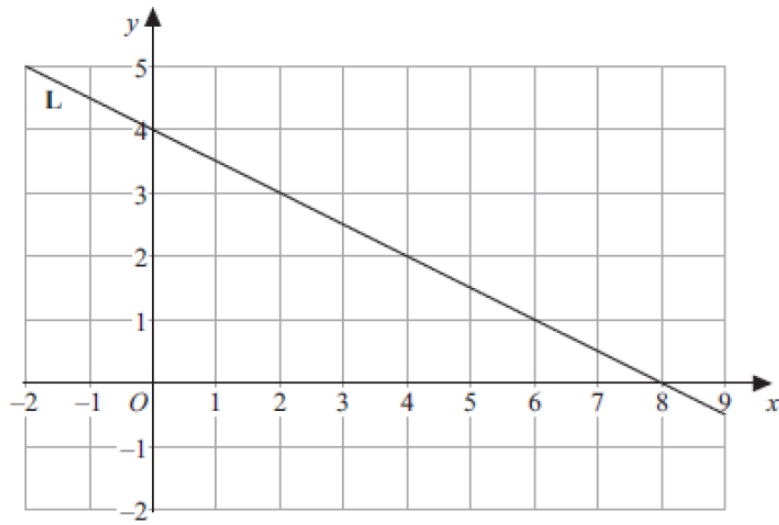


b. On the grid, show by shading the region which satisfies the inequalities $3 \leq x \leq 6$ and $2 \leq y \leq 4$. Label your region **R**.



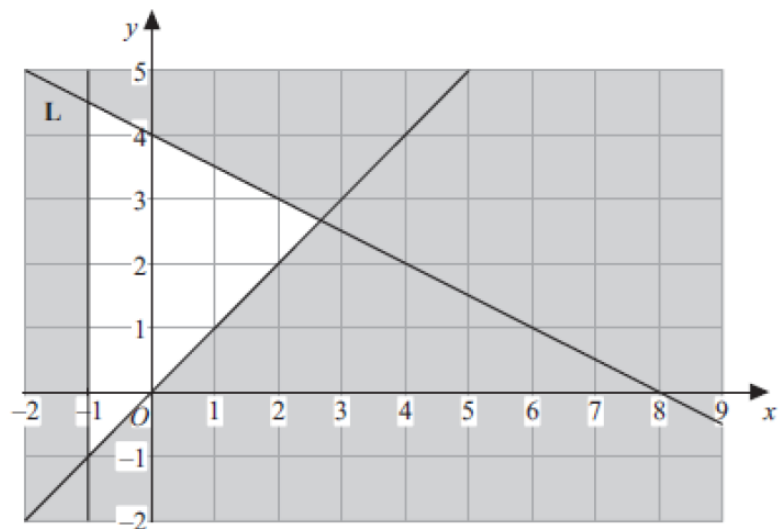
10. May 2010 4H Q12

a.



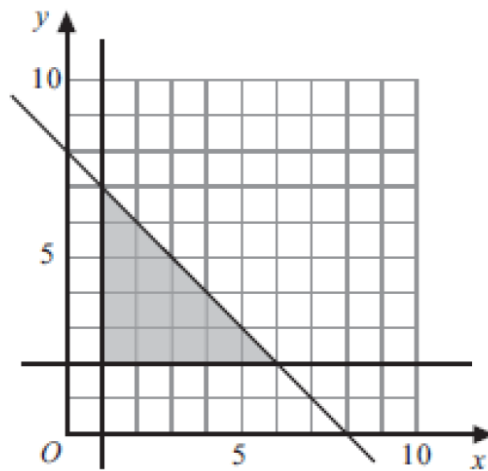
Find the equation of the line L.

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



11. Nov 2010 4H Q9

Write down the 3 inequalities that define the shaded region.

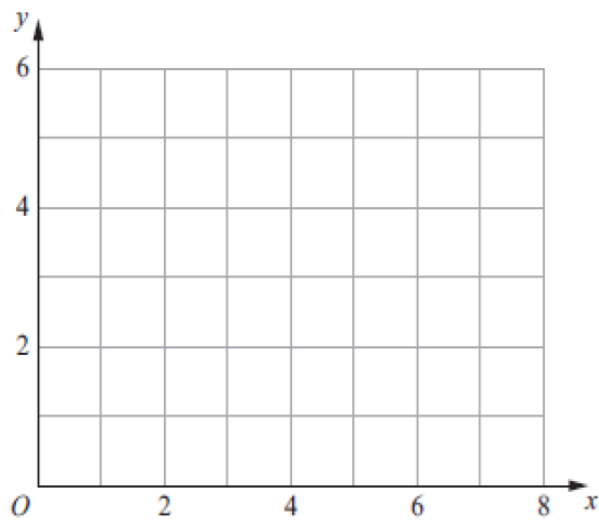


12. June 2012 3H Q6

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

$$x \leq 5 \quad y \geq 3 \quad y \leq x$$

Label your region **R**.

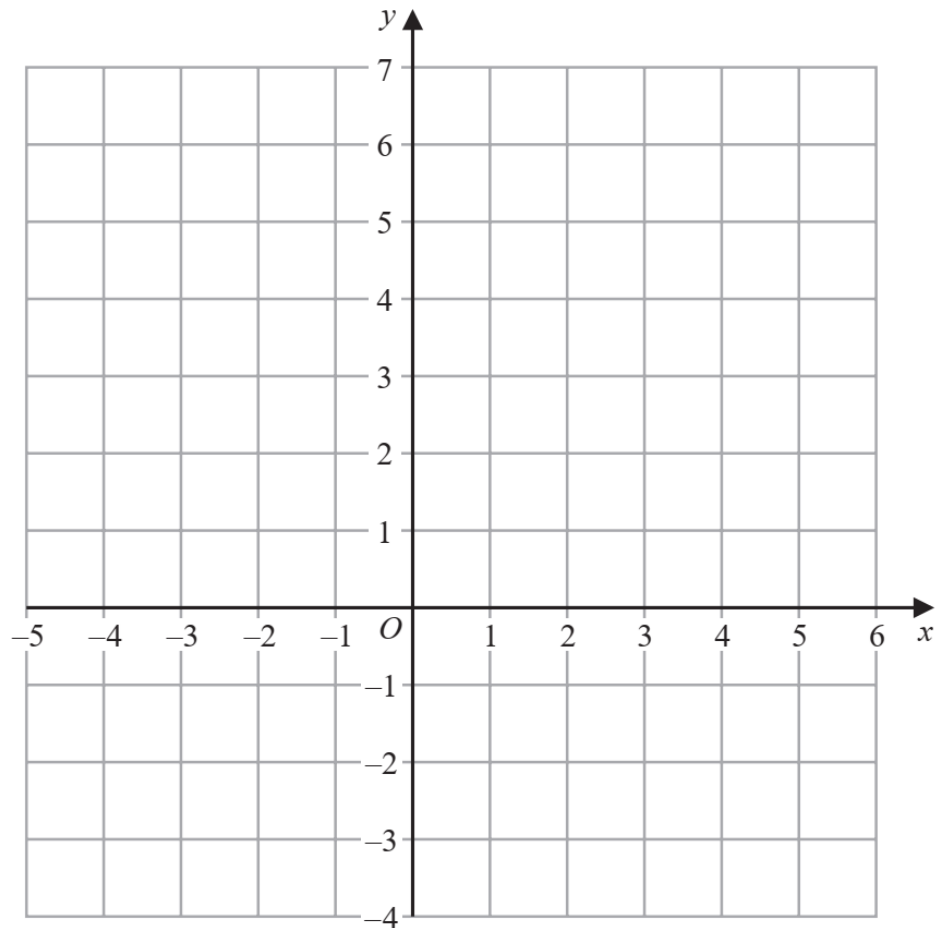


13. June 2020 (2HR) Q11

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

$$x \leq 4 \quad \text{and} \quad y \geq -2 \quad \text{and} \quad y \leq x$$

Label the region **R**.



(Total for Question 11 is 3 marks)