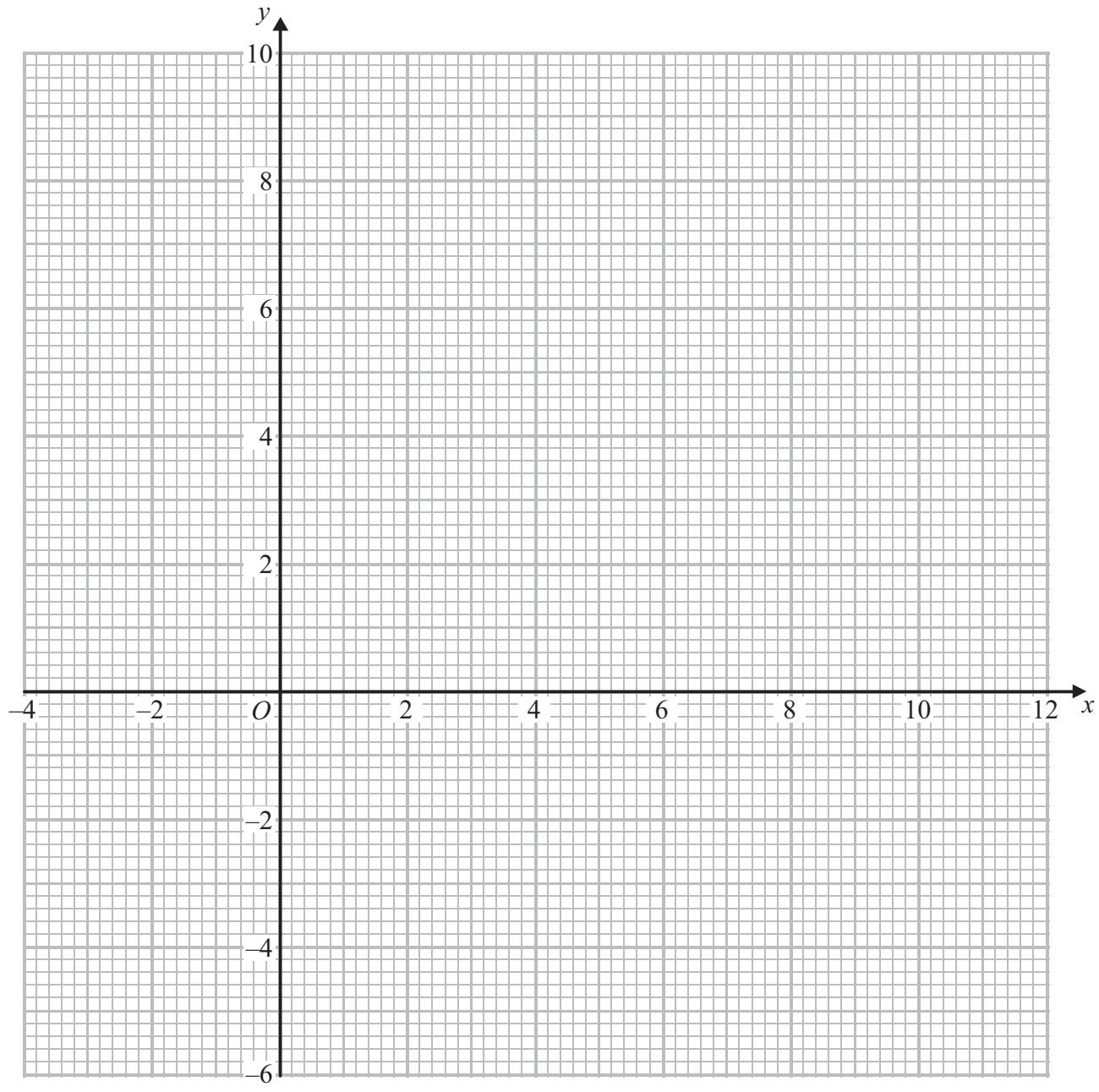
Level 3 Algebra · Inequalities - Graphs

June 2013 - Question 3
Jan 2014 - Question 8
Jan 2015 - Question 7
June 2015 - Question 7
Jan 2016 - Question 4
June 2016 - Question 3
Jan 2017 - Question 2
June 2017 - Question 7
Jan 2018 - Question 2
June 2018 - Question 7
Jan 2019 - Question 2
June 2019 - Question 8
Jan 2020 - Question 2
Jan 2021 - Question 2
Jan 2022 - Question 4
June 2022 - Question 4
Jan 2023 - Question 3
June 2023 - Question 3
Jan 2024 - Question 4

3 On the grid, shade the region that satisfies all these inequalities.

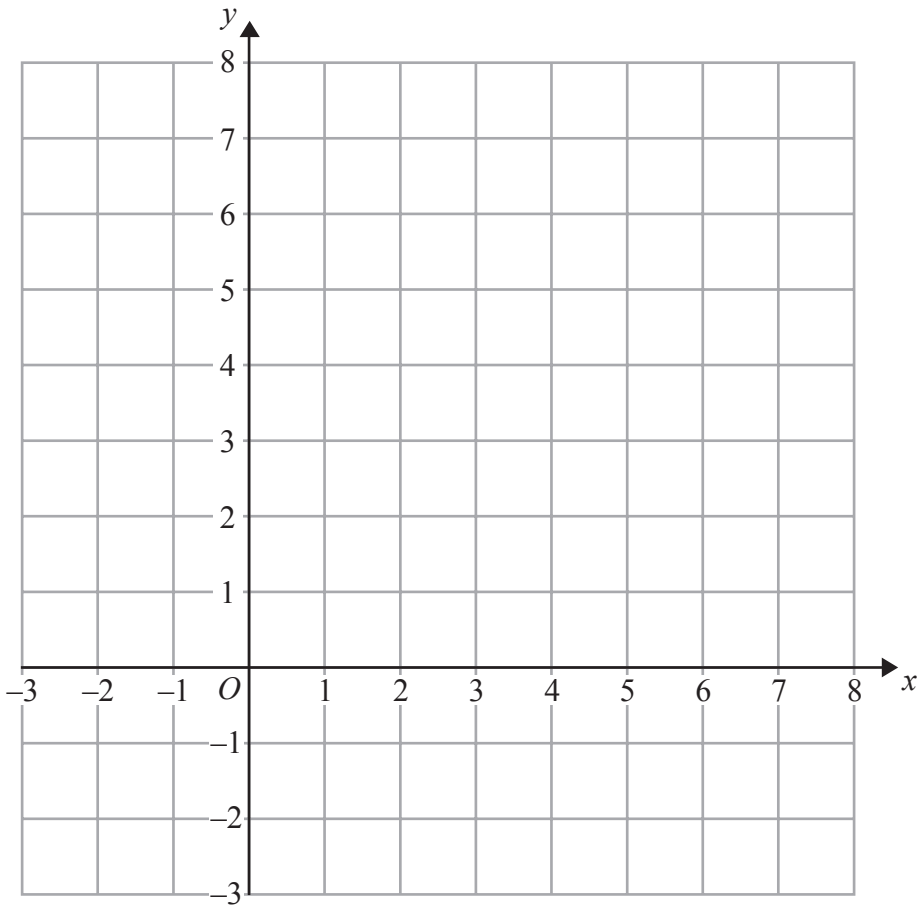
$x > 1$ $x + 2y < 10$ $y > 2x$



(Total for Question 3 is 5 marks)

8 On the grid, shade the region that satisfies all these inequalities.

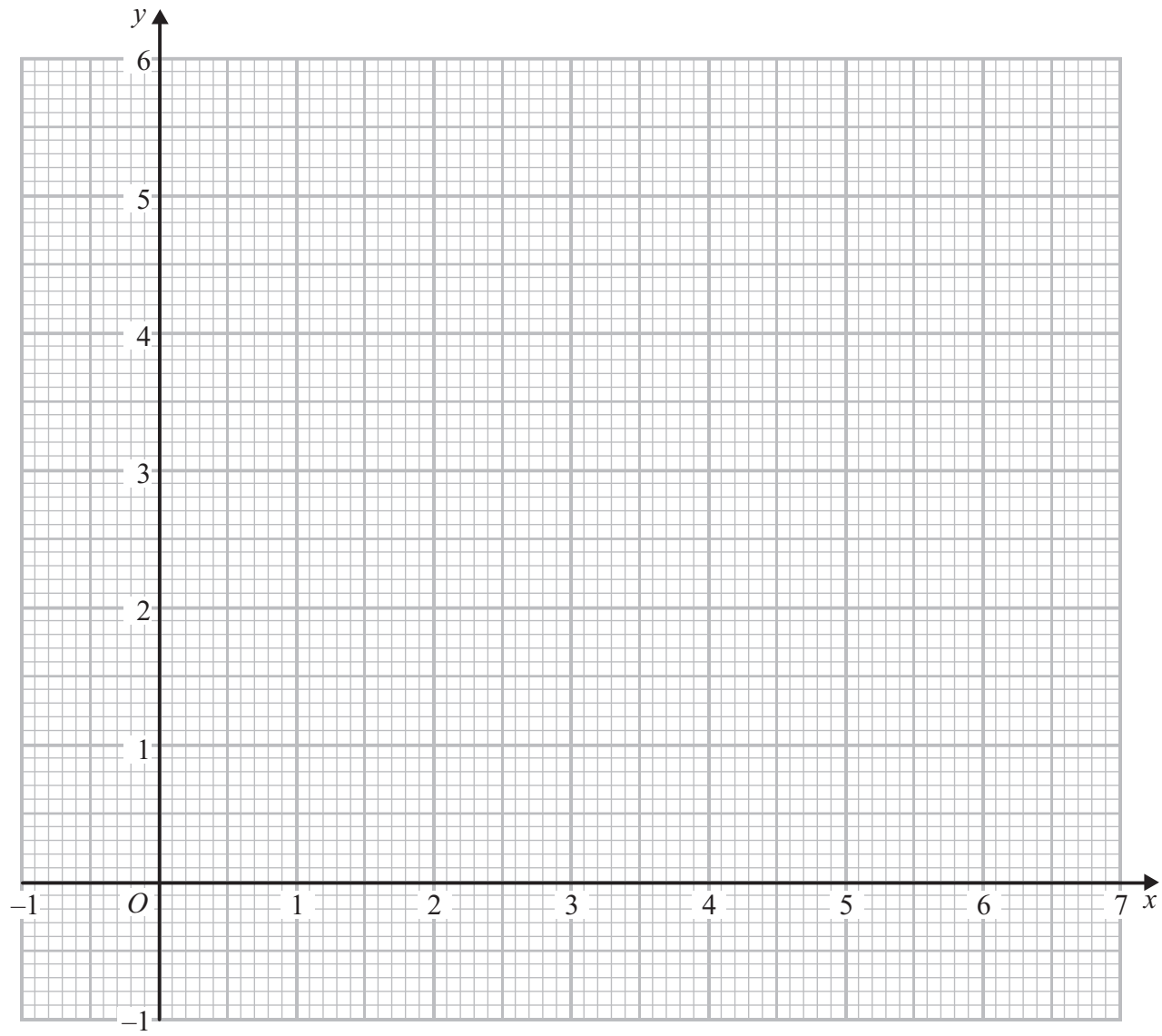
$x > 0$ $y > 0$ $x < 3$ $y < \frac{1}{2}x + 5$ $3x + 2y > 6$



(Total for Question 8 is 5 marks)

7 (a) On the grid, shade the region that satisfies all these inequalities.

$$y \leqslant x \qquad 2x + 3y \leqslant 12 \qquad y \geqslant \frac{1}{4}x + 1$$



(5)

(b) Write down the coordinates of each of the points with integer coordinates that satisfy

$$y \leqslant x \quad \text{and} \quad 2x + 3y \leqslant 12 \quad \text{and} \quad y \geqslant \frac{1}{4}x + 1$$

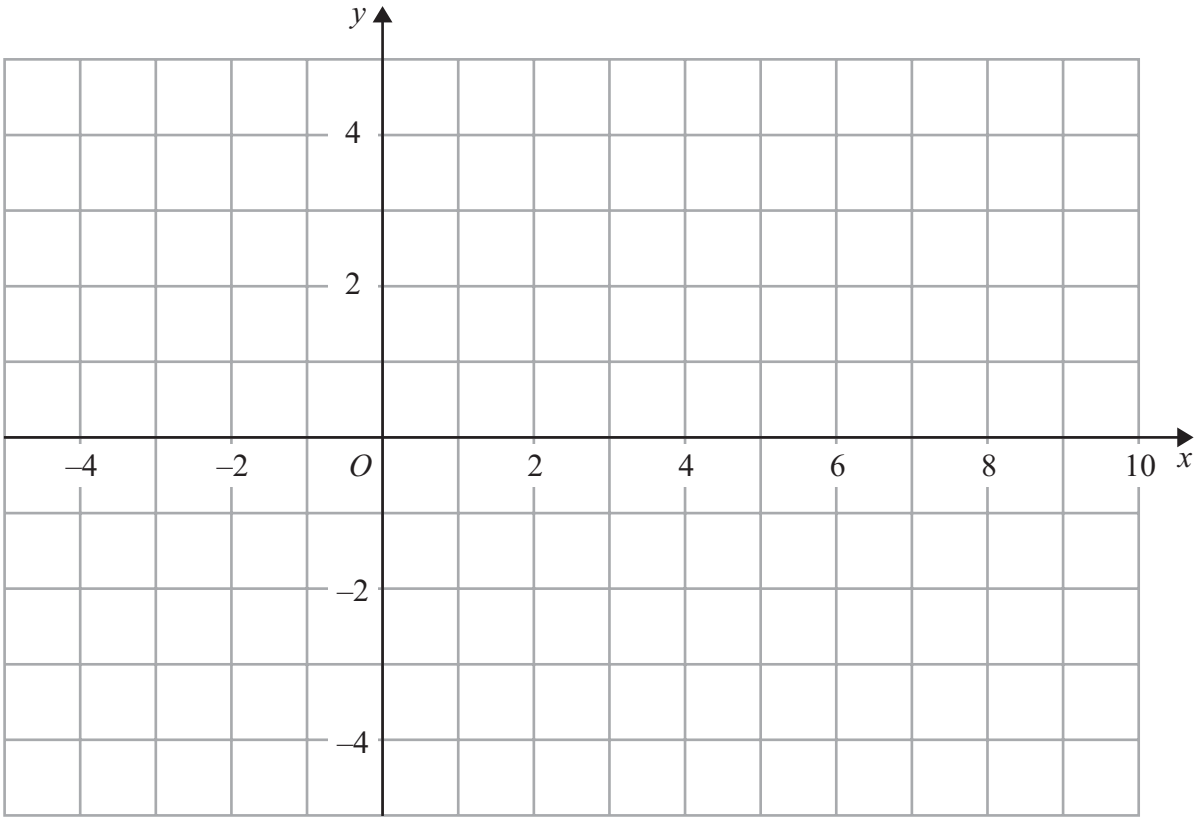
.....

(1)

(Total for Question 7 is 6 marks)

7 On the grid, shade the region that satisfies all of these inequalities.

$x + y < 3$ $y > -2$ $y < 2x - 2$

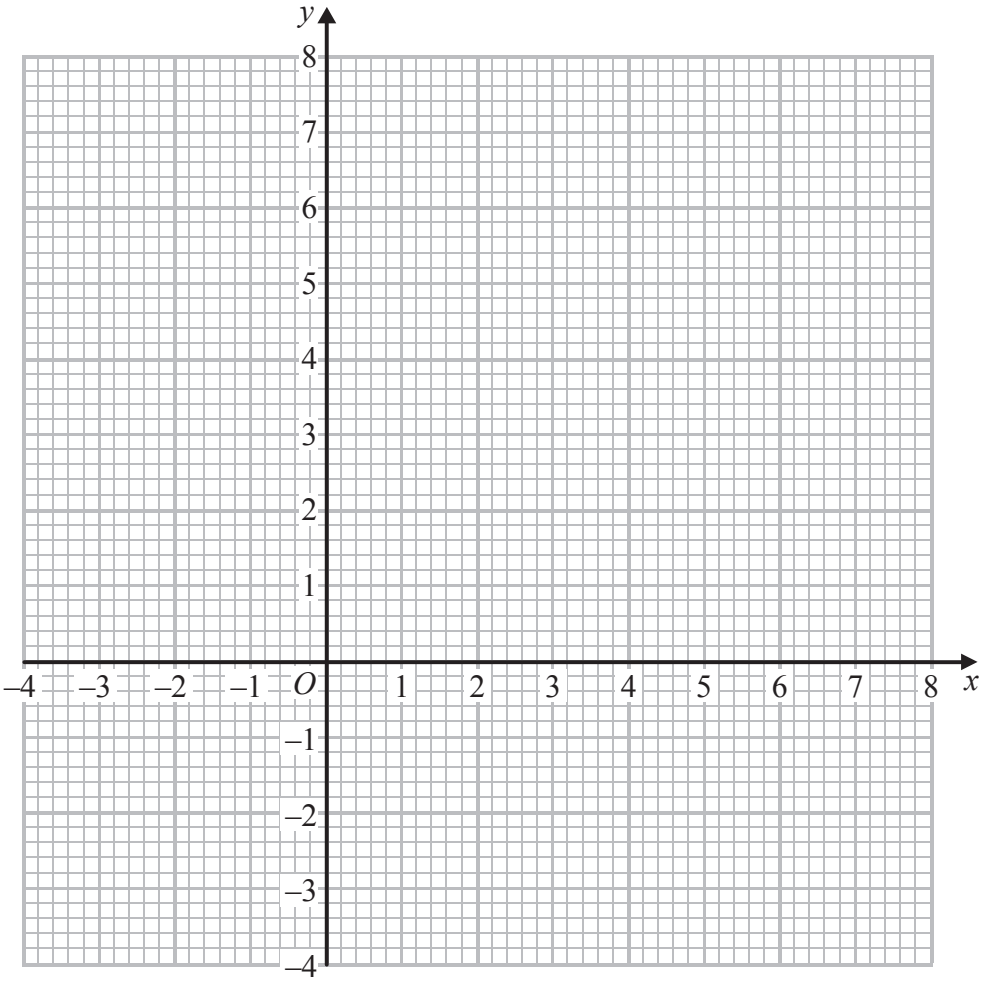


(Total for Question 7 is 5 marks)

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

$$x > 0 \qquad x + y < 6 \qquad y > 3x - 3$$

Label the region **R**.

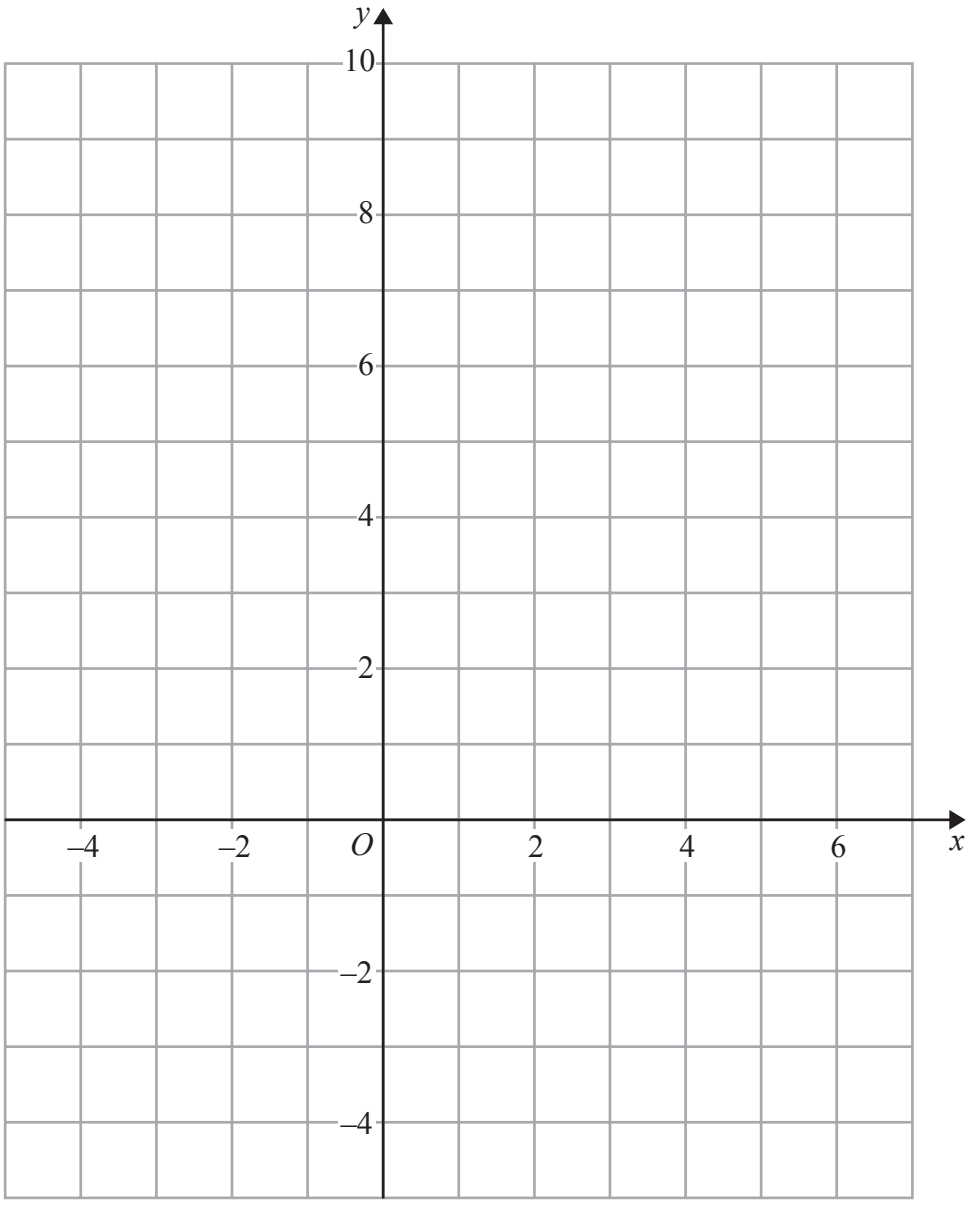


(Total for Question 4 is 4 marks)

3 On the grid, shade the region that satisfies all these inequalities.

$x + y < 5$ $y > 2x + 1$ $y < -3x$

Label the region **R**.

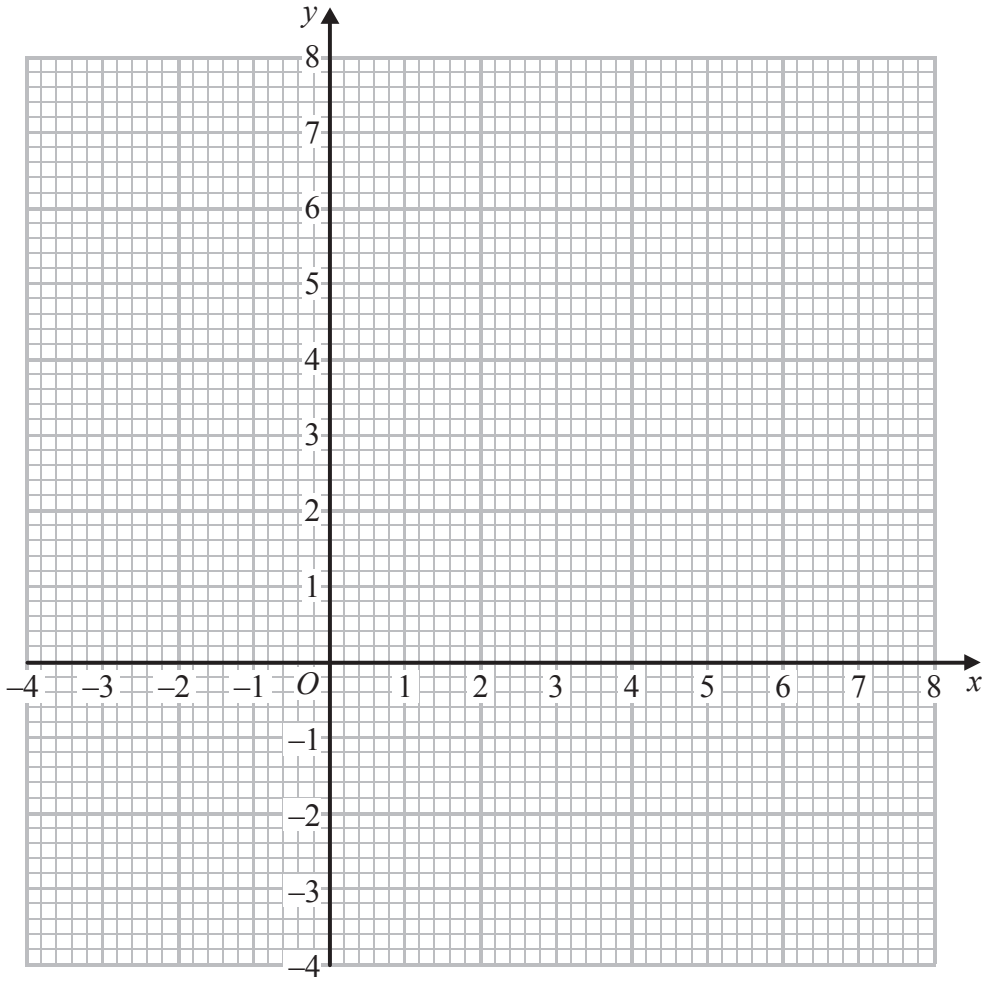


(Total for Question 3 is 5 marks)

2 On the grid, shade the region that satisfies all these inequalities.

$$y > \frac{1}{4}x \qquad y > 3 - x \qquad x + 3y < 7$$

Label the region **R**.

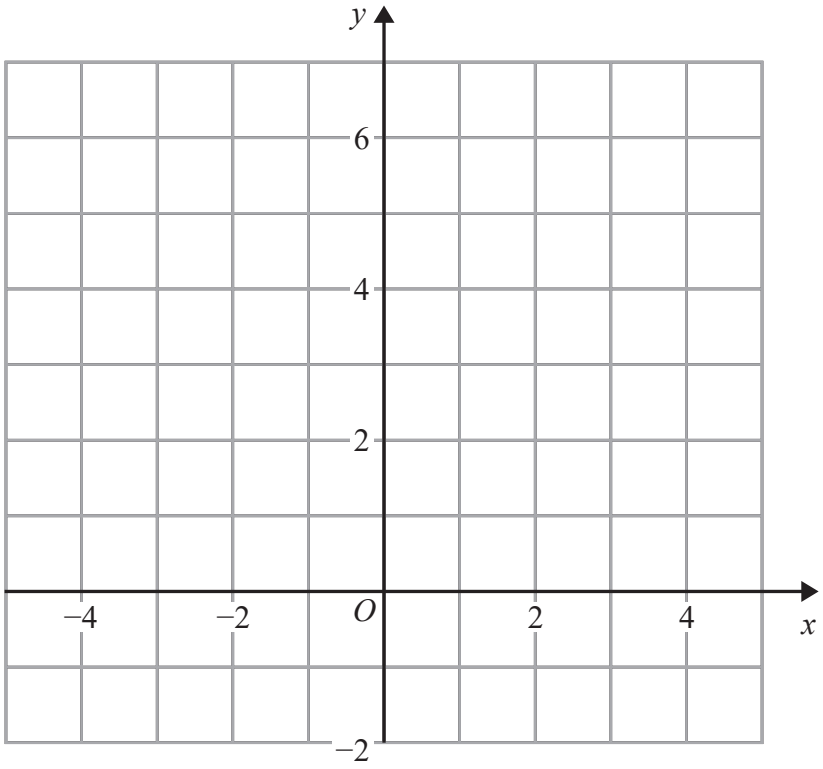


(Total for Question 2 is 5 marks)

7 On the grid, shade the region that satisfies all these inequalities.

$$2x + y > 3 \qquad y < 5 \qquad y > x + 3$$

Label the region **R**.

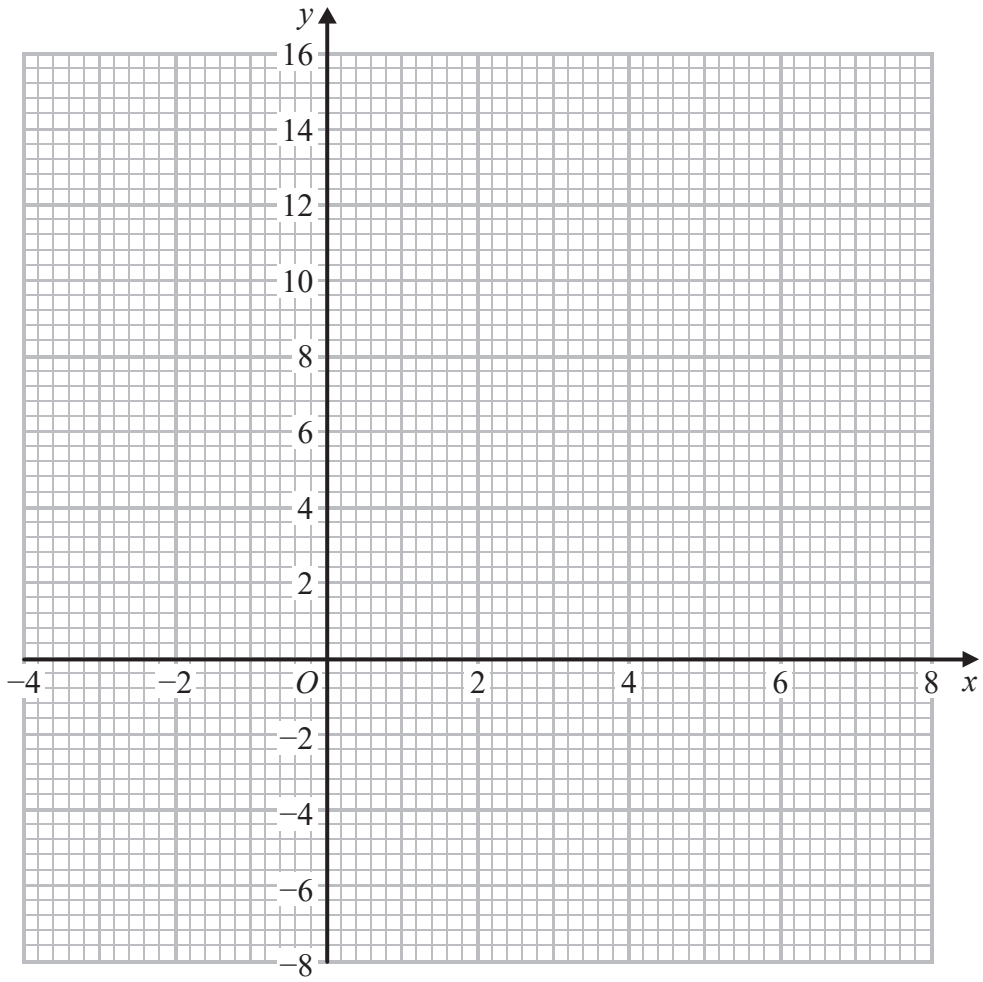


(Total for Question 7 is 5 marks)

2 On the grid, shade the region that satisfies all these inequalities.

$$x > 0 \qquad y > 0 \qquad y > 3x - 6 \qquad 2x + y < 12$$

Label the region **R**.

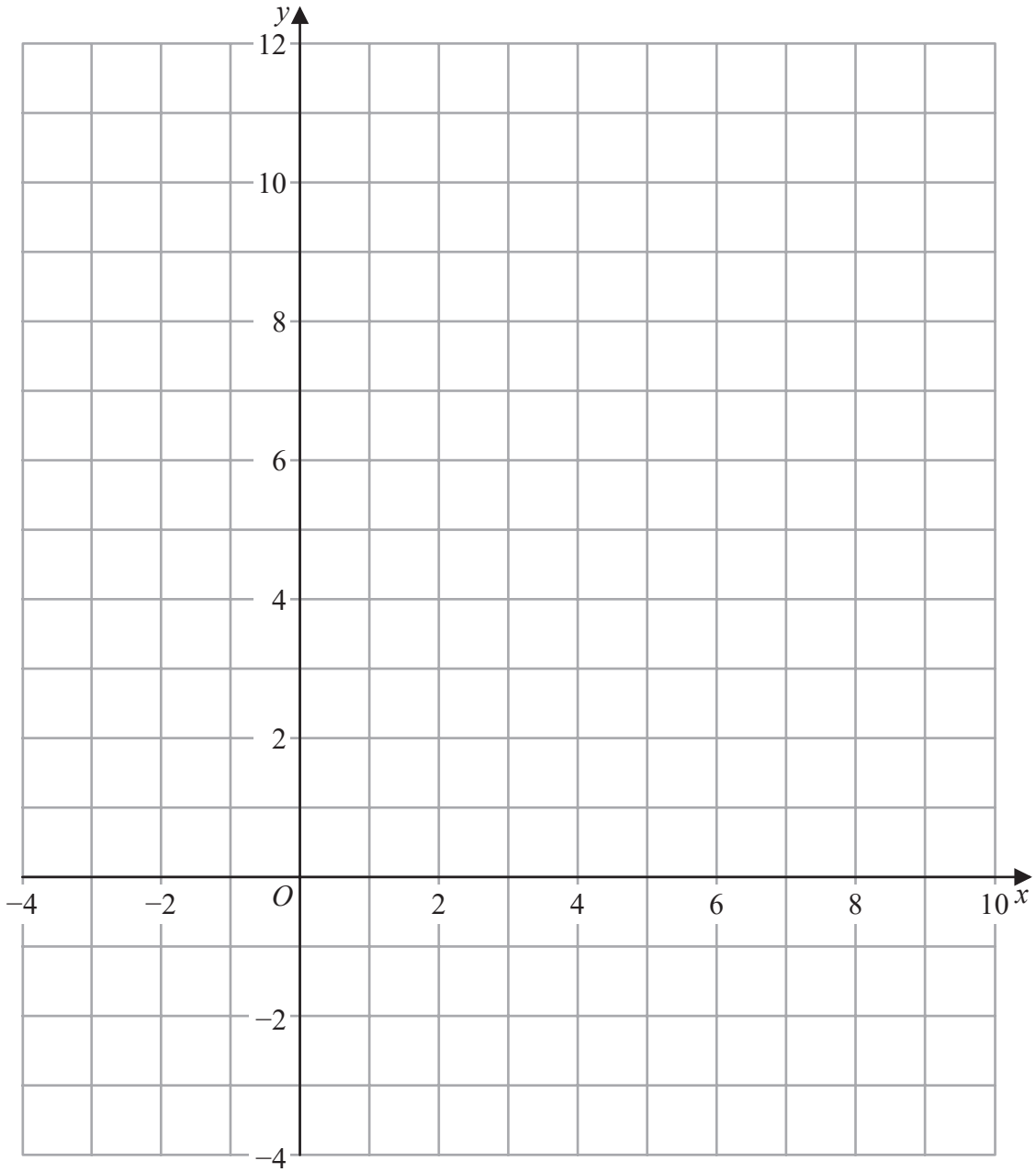


(Total for Question 2 is 4 marks)

7 On the grid, shade the region that satisfies all these inequalities.

$4x + 3y < 24$ $x > -2$ $3y > 9 - x$

Label the region **R**.

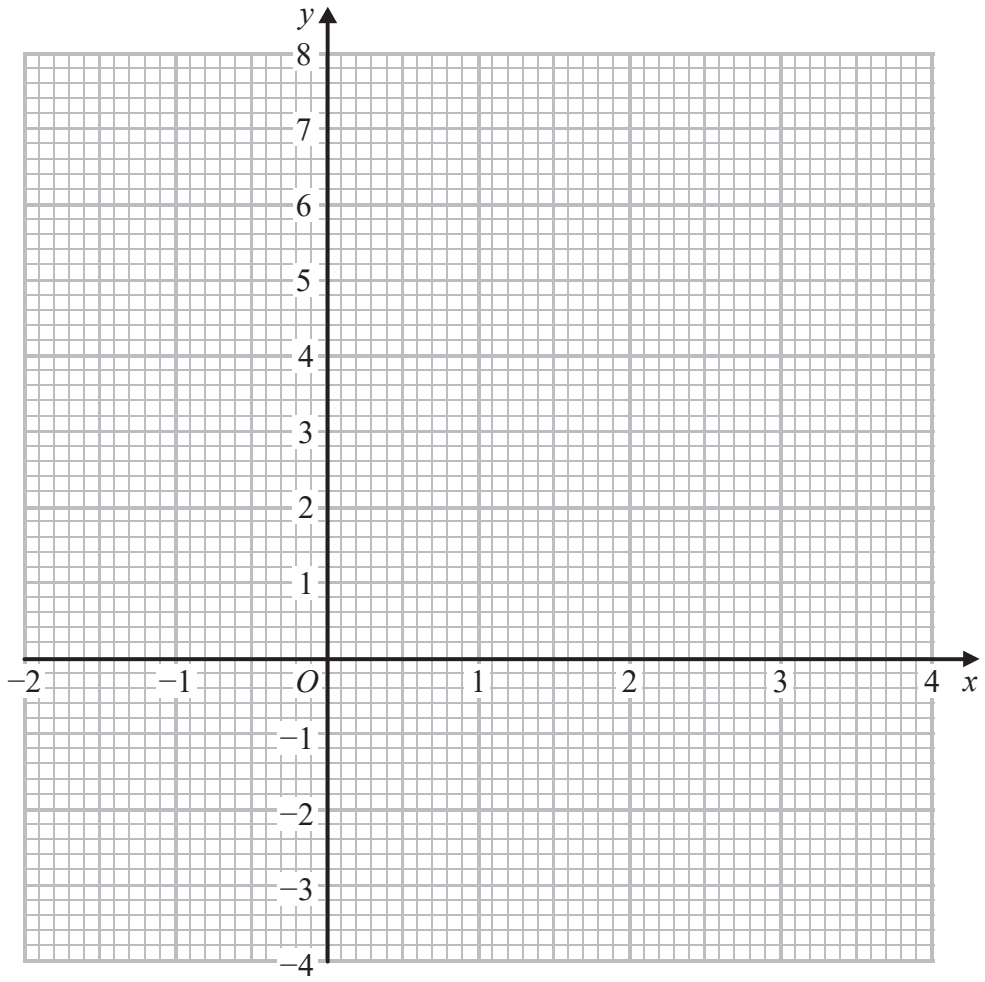


(Total for Question 7 is 5 marks)

2 On the grid, shade the region that satisfies all these inequalities.

$y < 2$ $y < 3x$ $5x + 3y < 15$ $2y - x > 1$

Label the region **R**.

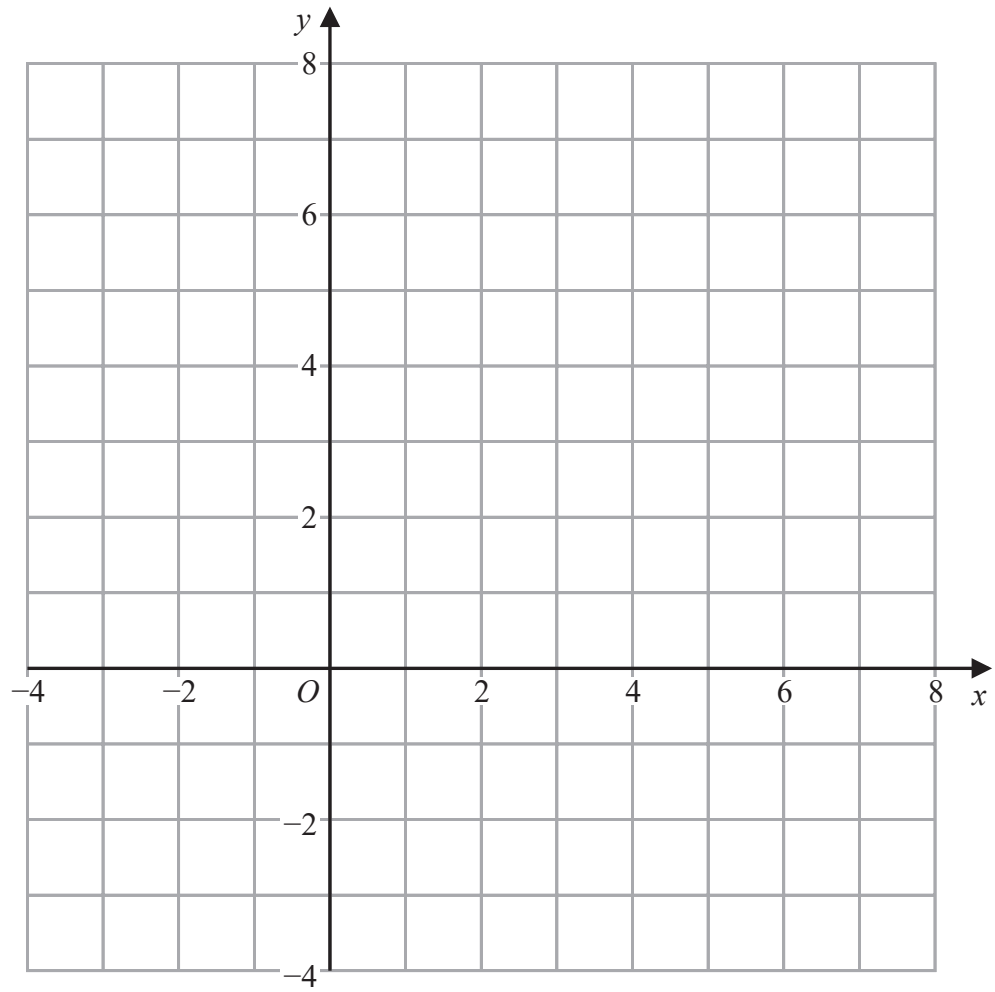


(Total for Question 2 is 5 marks)

8 On the grid, shade the region that satisfies all these inequalities.

$$x > -1 \qquad 2x + y < 6 \qquad y < 4 - x$$

Label the region **R**.

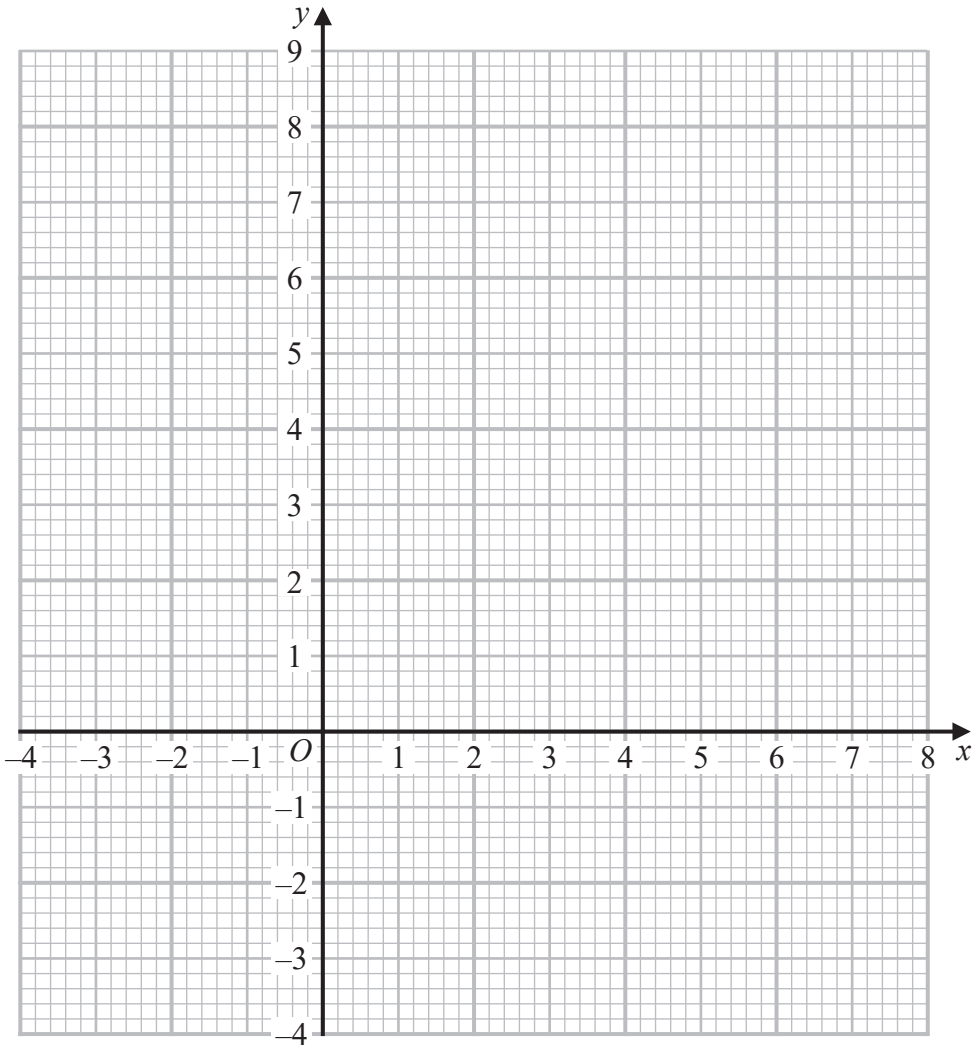


(Total for Question 8 is 5 marks)

2 (a) On the grid, shade the region that satisfies all these inequalities.

$$x < 3 \qquad y - x < 5 \qquad 7x + 5y > 35$$

Label the region **R**



(5)

(b) Write down the coordinates of each of the points, with integer coordinates, that satisfy

$$x < 3 \qquad y - x < 5 \qquad 7x + 5y > 35$$

.....

(1)

(Total for Question 2 is 6 marks)

4 (a) Factorise $y^2 - x^2$

.....

(1)

(b) Factorise $6xy - 8y + 9x - 12$

.....

(2)

(Total for Question 4 is 3 marks)

DO NOT WRITE IN THIS AREA

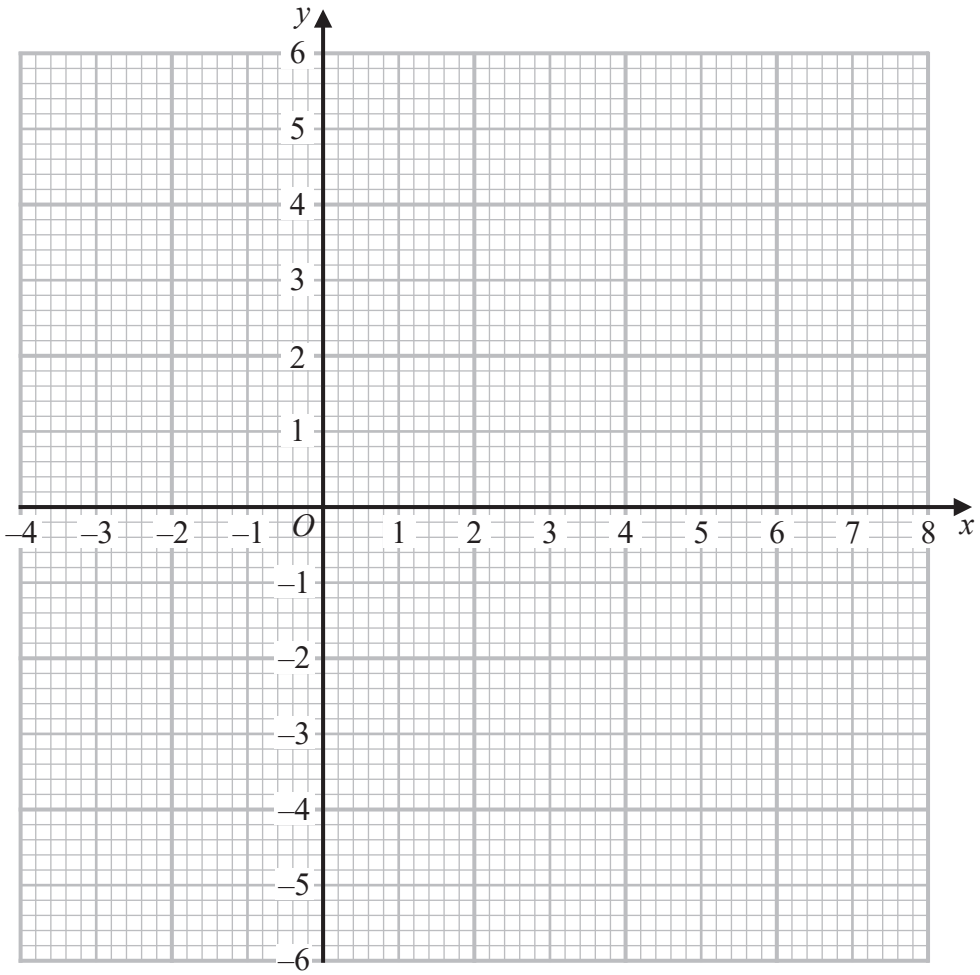
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

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

$x > -1$ $y > 2$ $y > x - 3$ $x + 2y > 4$

Label the region **R**

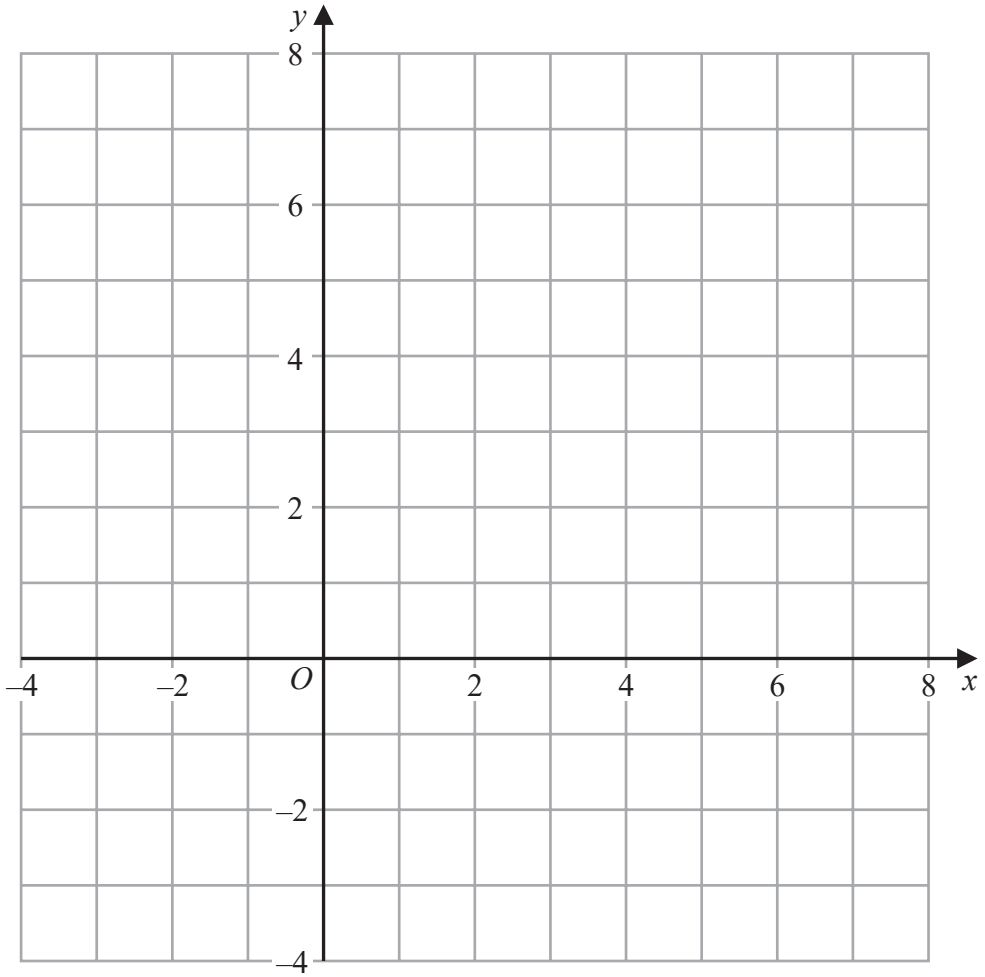


(Total for Question 4 is 5 marks)

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

$$x > -2 \qquad y > 1 \qquad 2x + 3y < 6 \qquad y < x + 4$$

Label the region **R**.

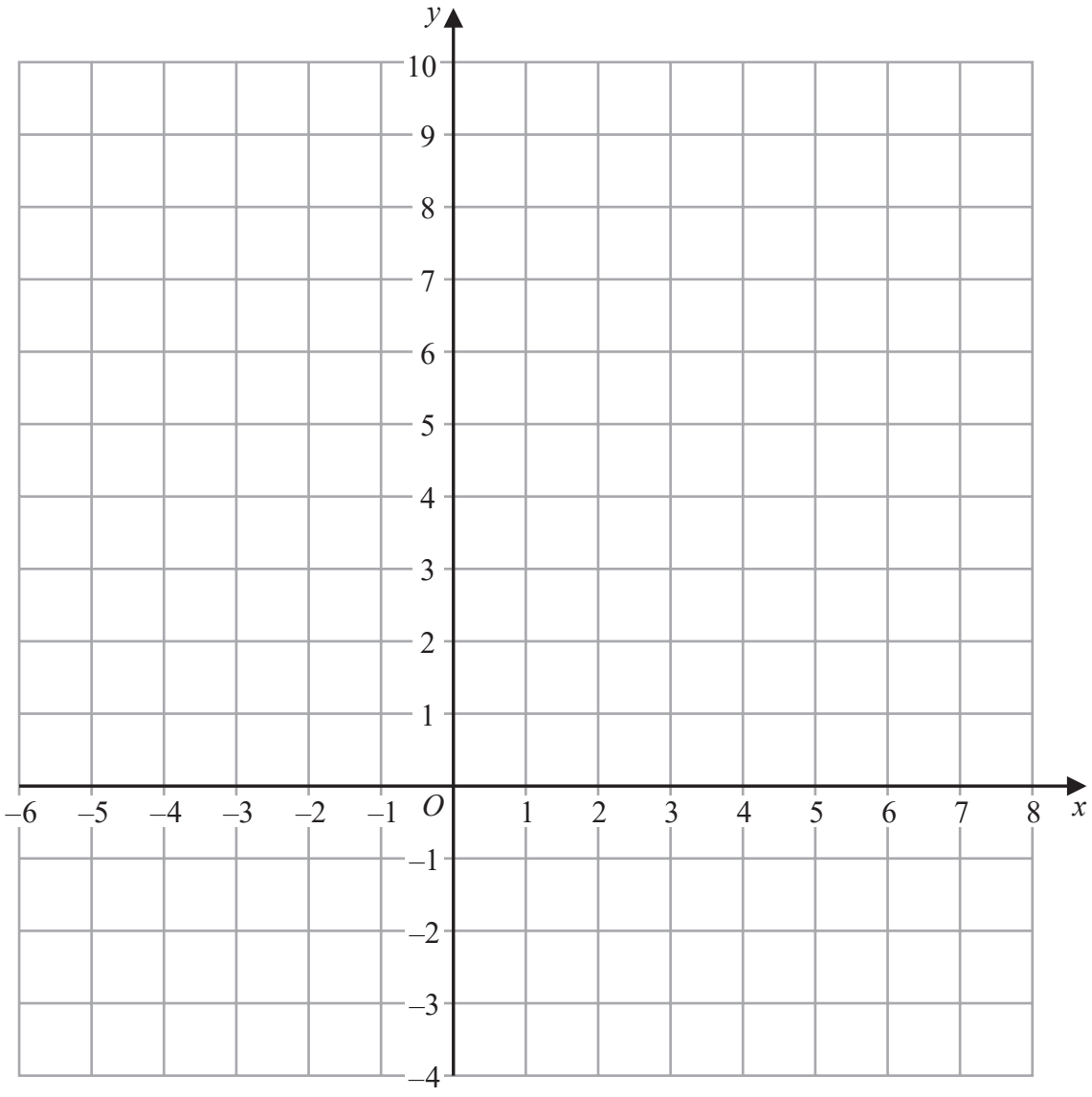


(Total for Question 4 is 5 marks)

3 On the grid, shade the region that satisfies all these inequalities.

$x > -1$ $3x + 5y < 15$ $y > 2x - 1$

Label the region **R**

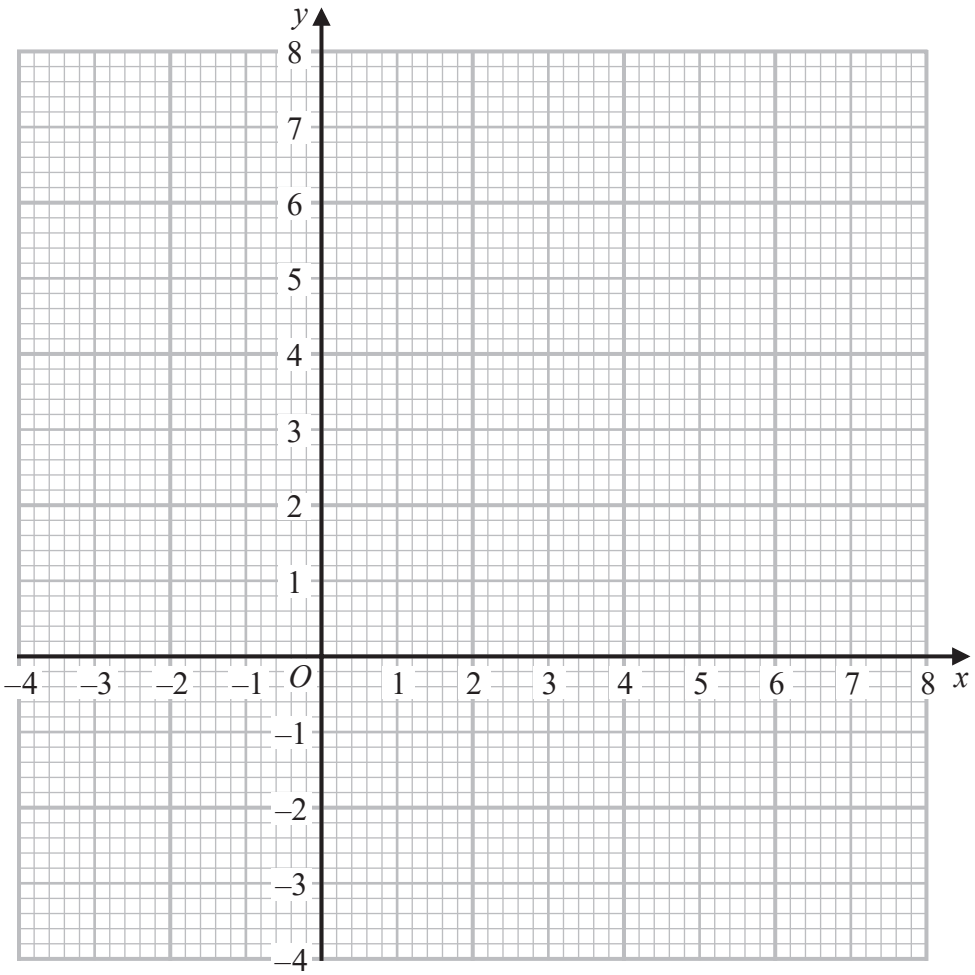


(Total for Question 3 is 5 marks)

3 On the grid, shade the region that satisfies all these inequalities.

$$y < x \qquad x + 5y > 5 \qquad x - 3y < 5$$

Label the region **R**

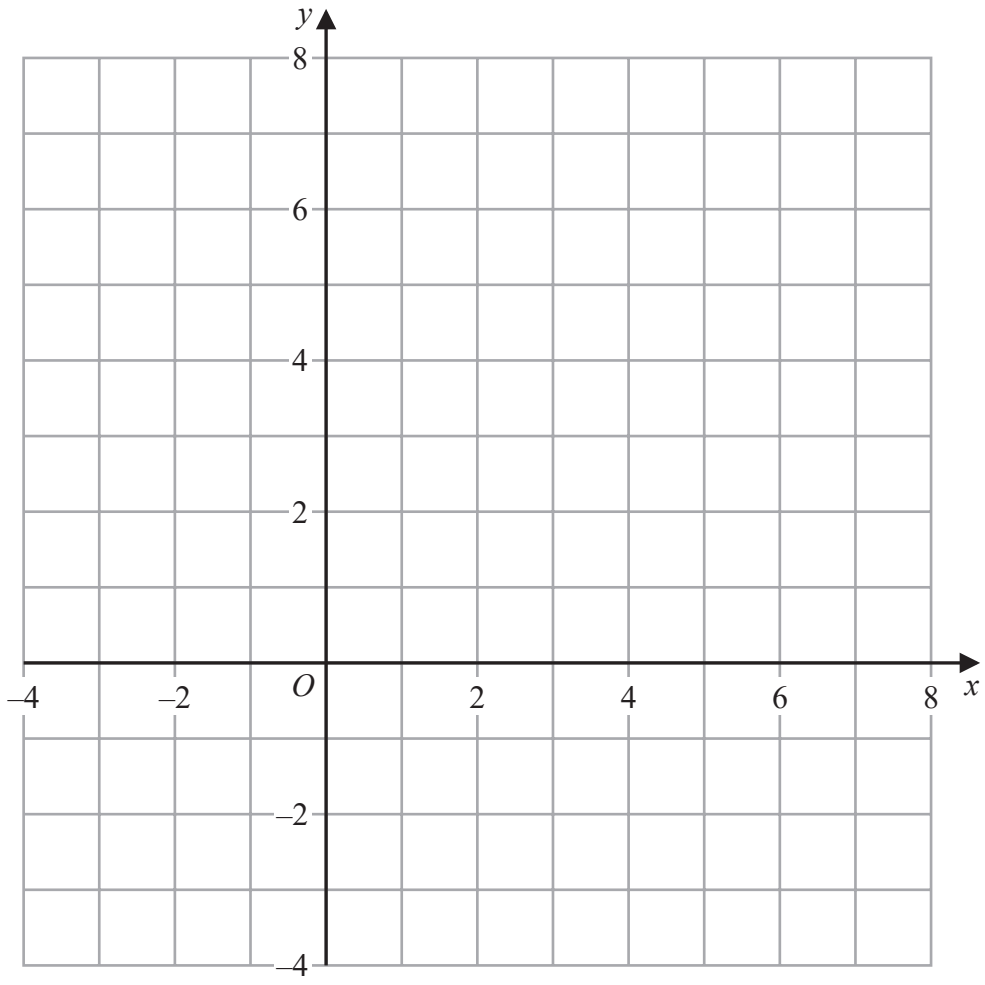


(Total for Question 3 is 5 marks)

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

$x > -1$ $y > 2$ $3x + 5y > 15$ $y - x < 6$

Label the region **R**



(Total for Question 4 is 5 marks)