1 On the grid, shade the region that satisfies all these inequalities.
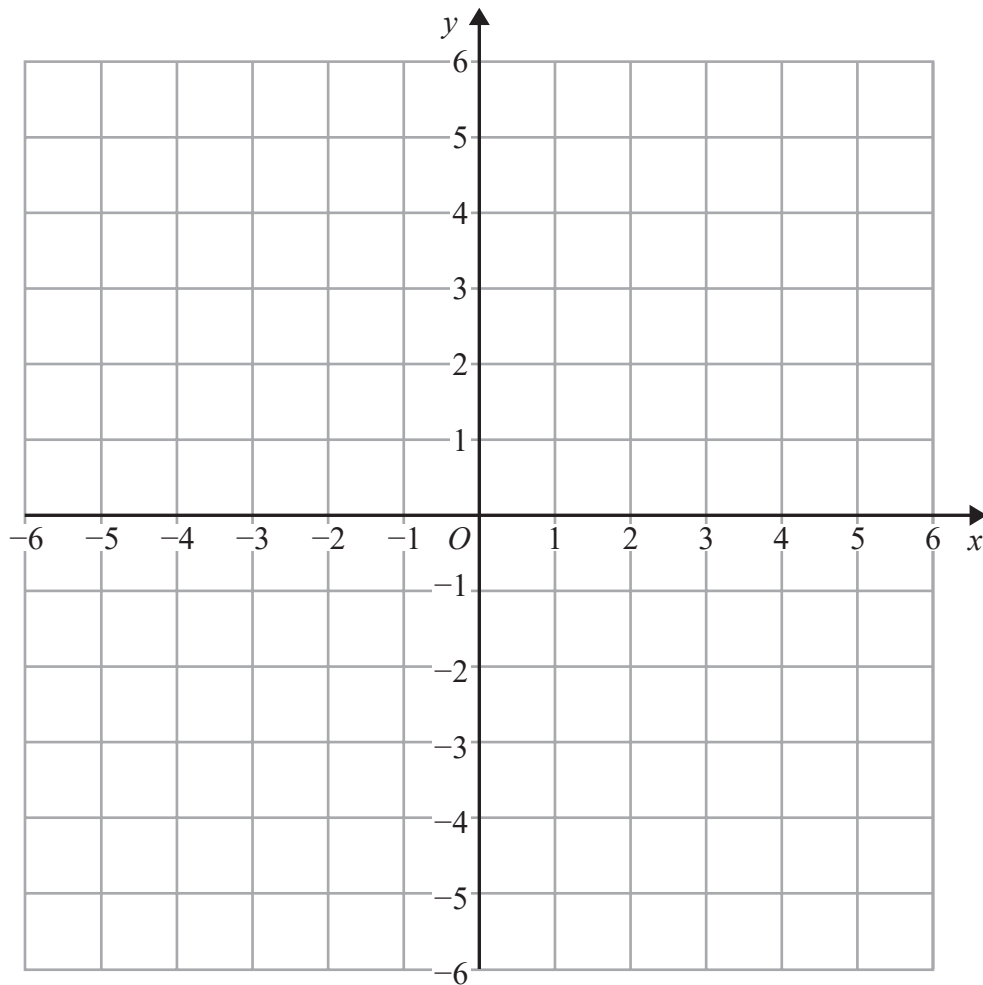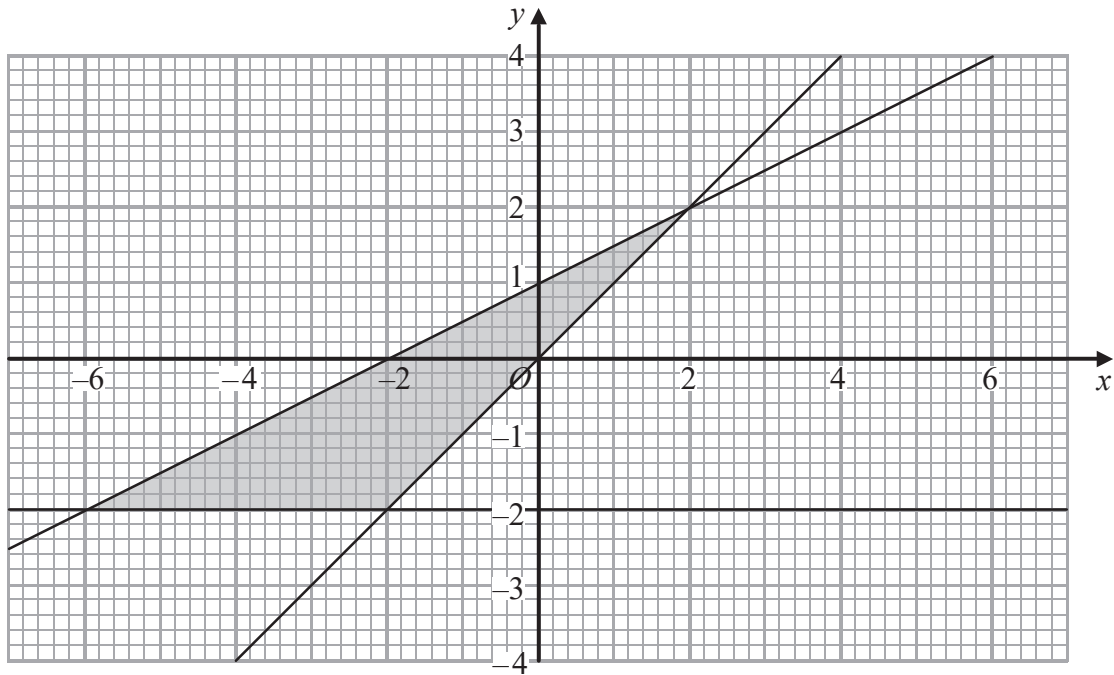
$$y > 1 \qquad x + y < 5 \qquad y > 2x$$

Label the region **R**.

(Total for Question 1 is 3 marks)

2

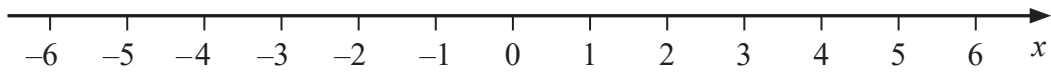Write down the three inequalities that define the shaded region.

....

....

....

(Total for Question 2 is 4 marks)

3   (a) Solve $14n > 11n + 6$

....
(2)

(b) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$
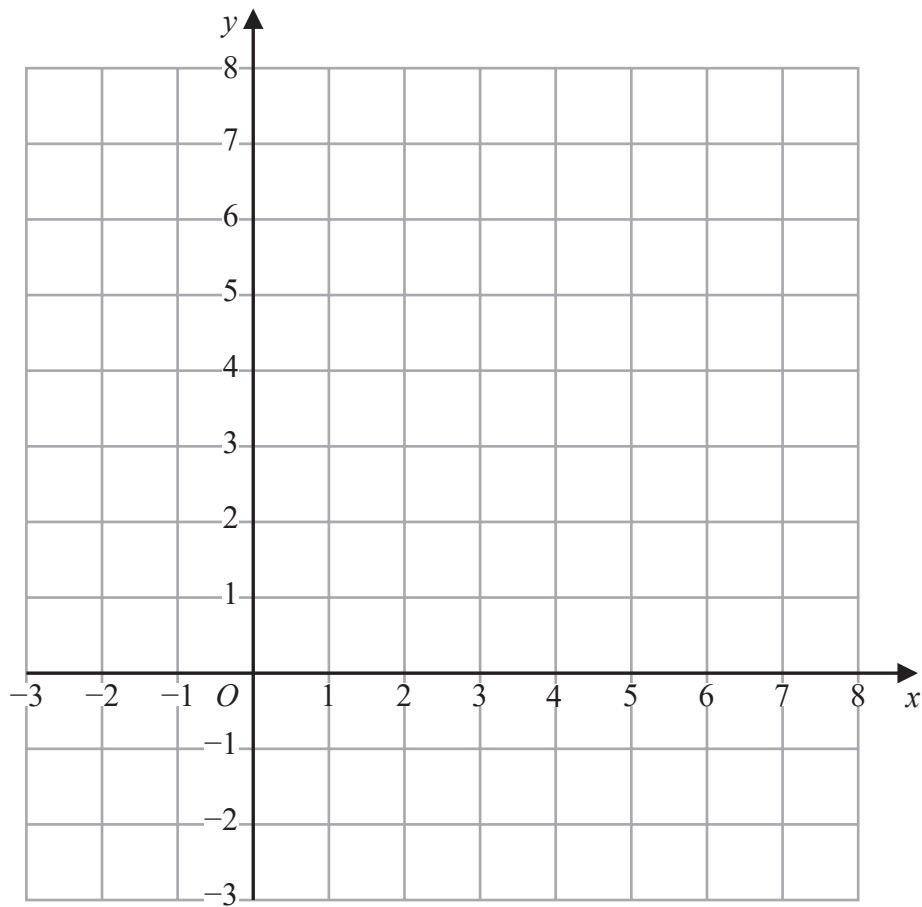

(3)

(Total for Question 3 is 5 marks)

4 (a) On the grid show, by shading, the region that satisfies all these inequalities.

$$x \geqslant 0 \qquad x \leqslant 2 \qquad y \leqslant x + 3 \qquad 2x + 3y \geqslant 6$$
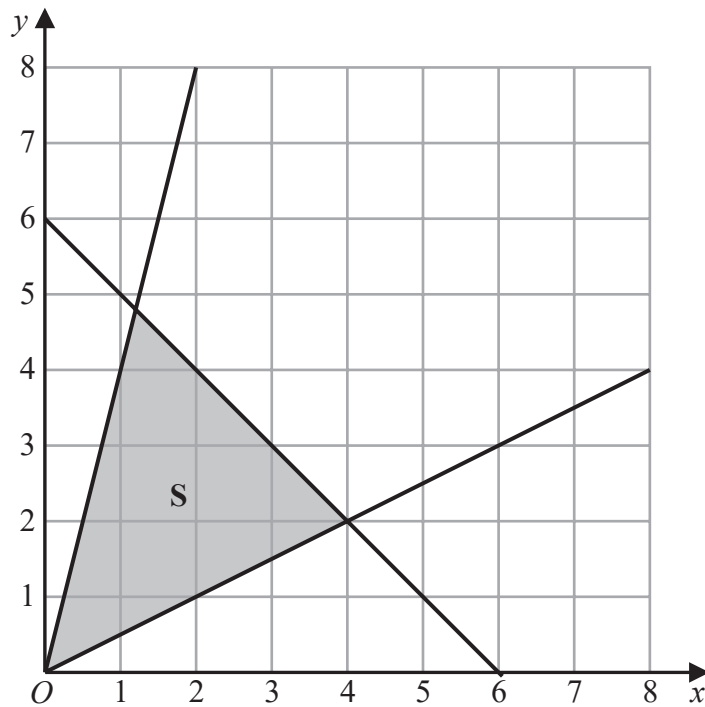
Label the region **R**.

(4)

(b) The diagram below shows the region **S** that satisfies the inequalities

$$y \leqslant 4x \qquad y \geqslant \frac{1}{2}x \qquad x + y \leqslant 6$$

Geoffrey says that the point with coordinates (2, 4) does not satisfy all the inequalities because it does not lie in the shaded region.

Is Geoffrey correct?
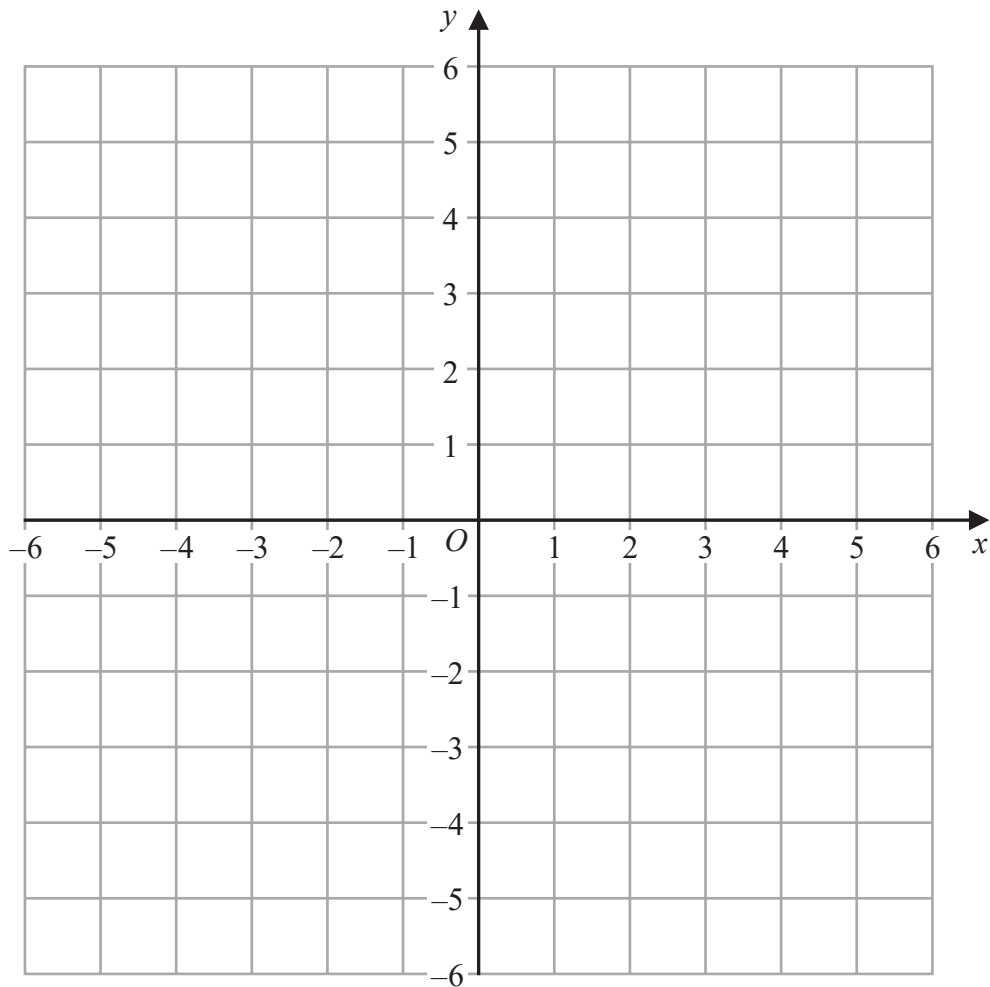You must give a reason for your answer.

....

....

....

(1)

(Total for Question 4 is 5 marks)

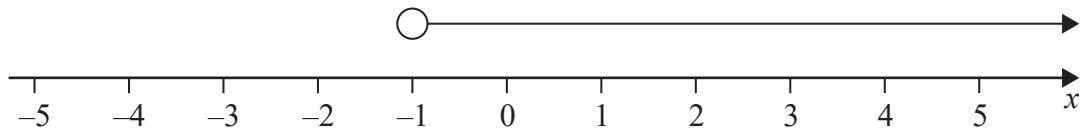**5** On the grid show, by shading, the region that satisfies all of these inequalities.

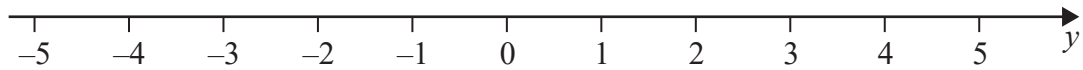$$2y + 4 < x \qquad x < 3 \qquad y < 6 - 3x$$

Label the region **R**.

(Total for Question 5 is 3 marks)

6 (a) Write down the inequality shown on this number line.

$$-5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad x$$

....

(1)

(b) On the number line below, show the inequality $-3 \leqslant y < 4$

$$-5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad y$$

(2)

(Total for Question 6 is 3 marks)

7 The shaded region shown on the grid is bounded by four straight lines.
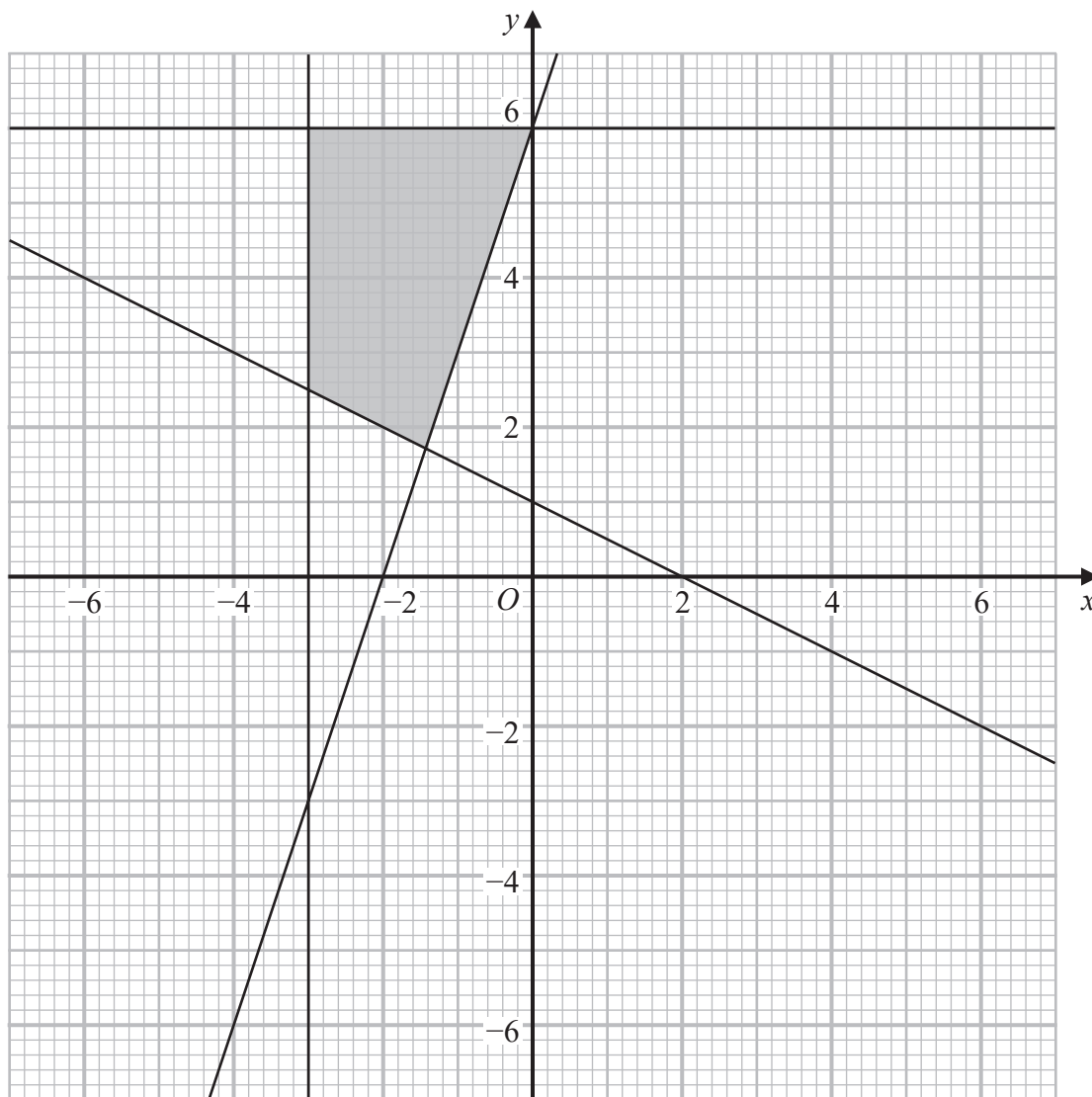
Find the four inequalities that define the shaded region.

....

....

....

....

(Total for Question 7 is 4 marks)

8 *x* and *y* are integers such that

$$3 < x < 8$$
$$4 < y < 10$$

and $x + y = 14$

Find all the possible values of *x*.

....

(Total for Question 8 is 2 marks)

9 Solve $7x - 27 < 8$

....

(Total for Question 9 is 2 marks)

9 Solve $7x - 27 < 8$