Solutions by
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GCSE (9-1) Grade 6

Inequalities

Regions



Instructions

Use **black** ink or ball-point pen.
Fill in the boxes at the top of this page with your name.
Answer **all** questions.
Answer the questions in the spaces provided
- there may be more space than you need.

Show all your working out

Information

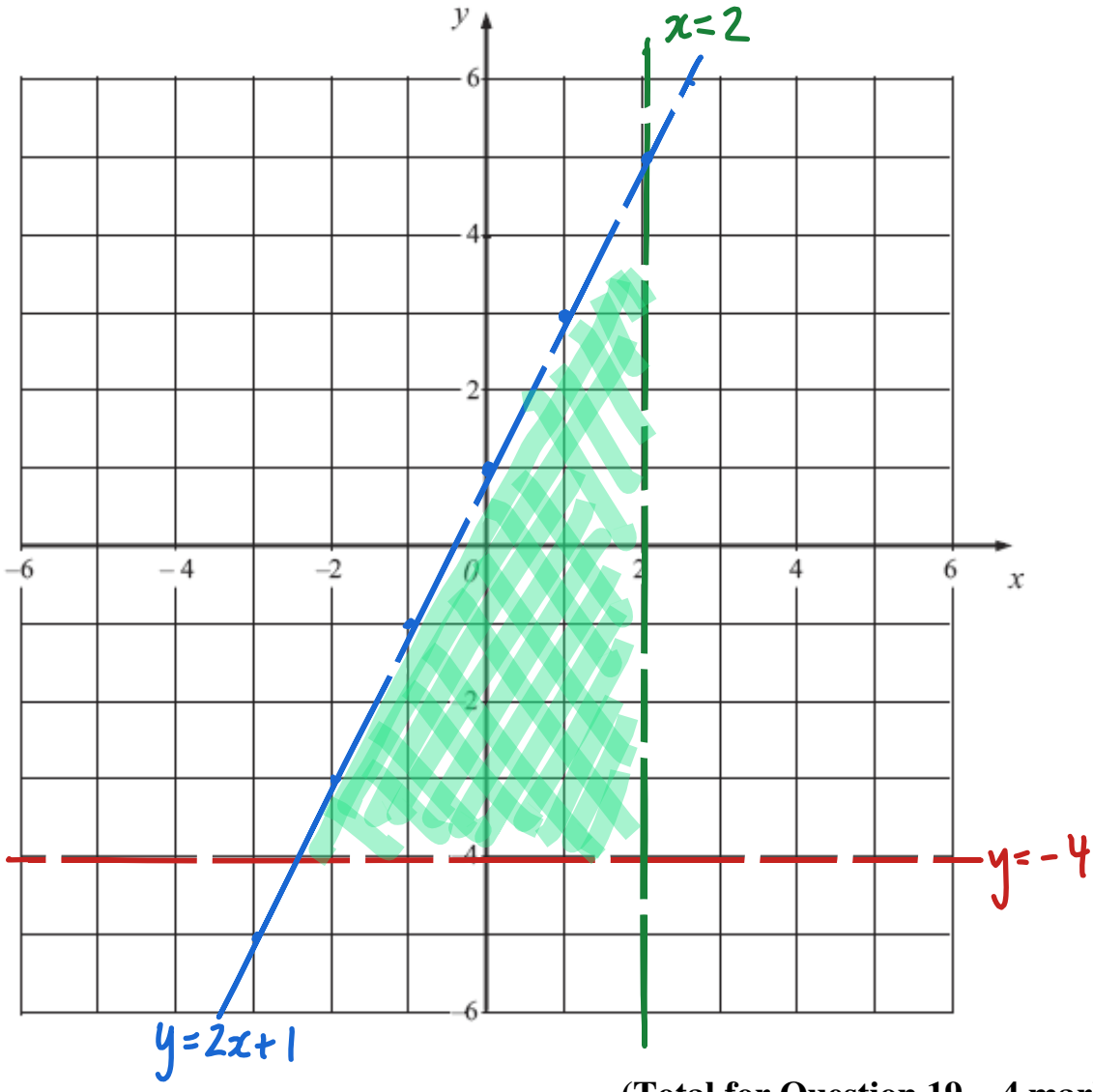
The marks for **each** question are shown in brackets.
use this as a guide as to how much time to spend on each question.
Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed

Advice

Read each question carefully before you start to answer it
Attempt every question
Check your answers if you have time at the end

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

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

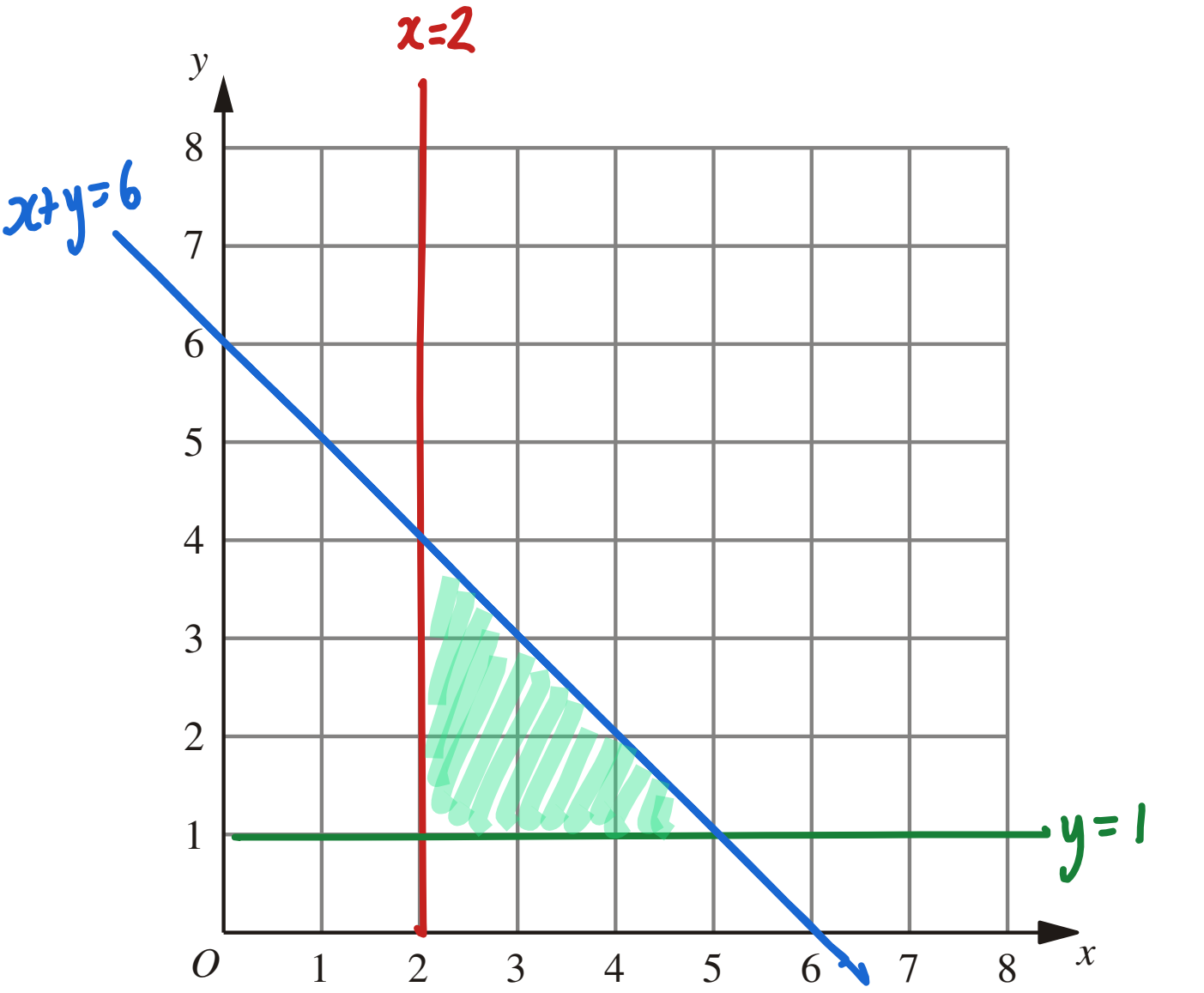


(Total for Question 19 = 4 marks)

2. The region **R** satisfies the inequalities

$x \geq 2$, $y \geq 1$, $x + y \leq 6$

On the grid below, draw straight lines and use shading to show the region **R**.



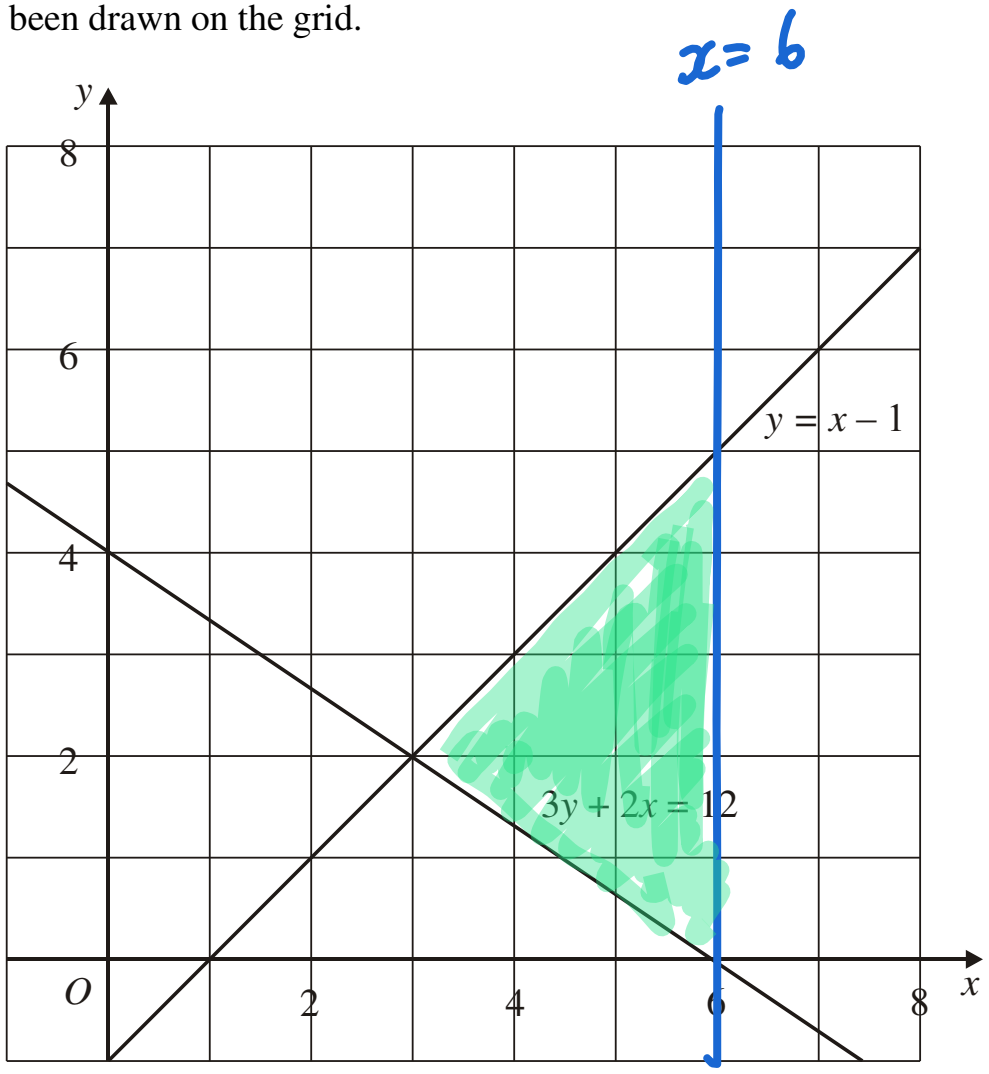
(Total 3 marks)

3. The graphs of the straight lines with equations

$3y + 2x = 12$ and

$y = x - 1$

have been drawn on the grid.



$3y + 2x > 12$ **$y < x - 1$** **$x < 6$**

x and y are integers.

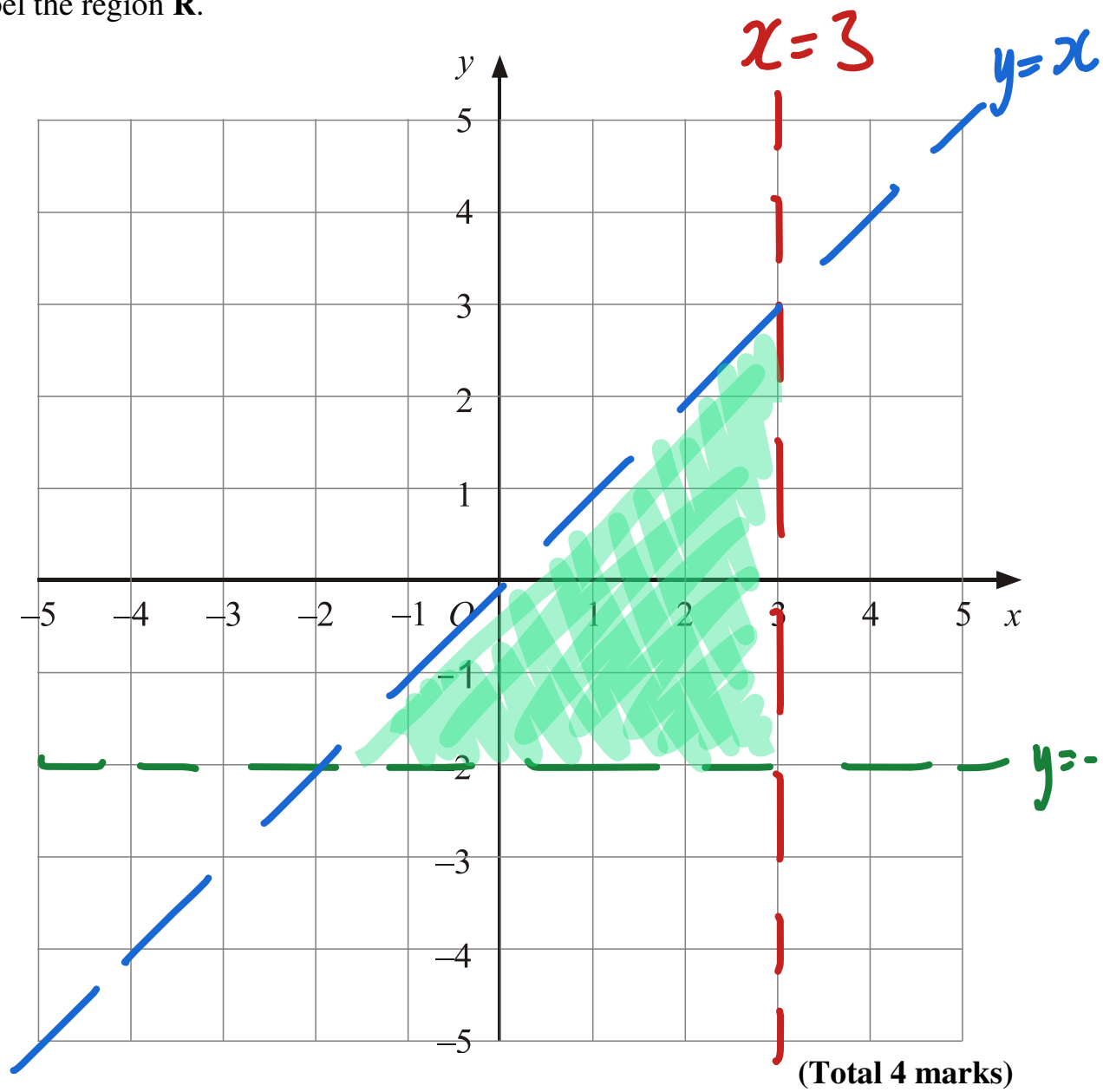
On the grid, mark with a cross (×), each of the **four** points which satisfies **all** 3 inequalities.

(Total 3 marks)

4. On the grid, show by shading, the region which satisfies all three of the inequalities.

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

Label the region **R**.

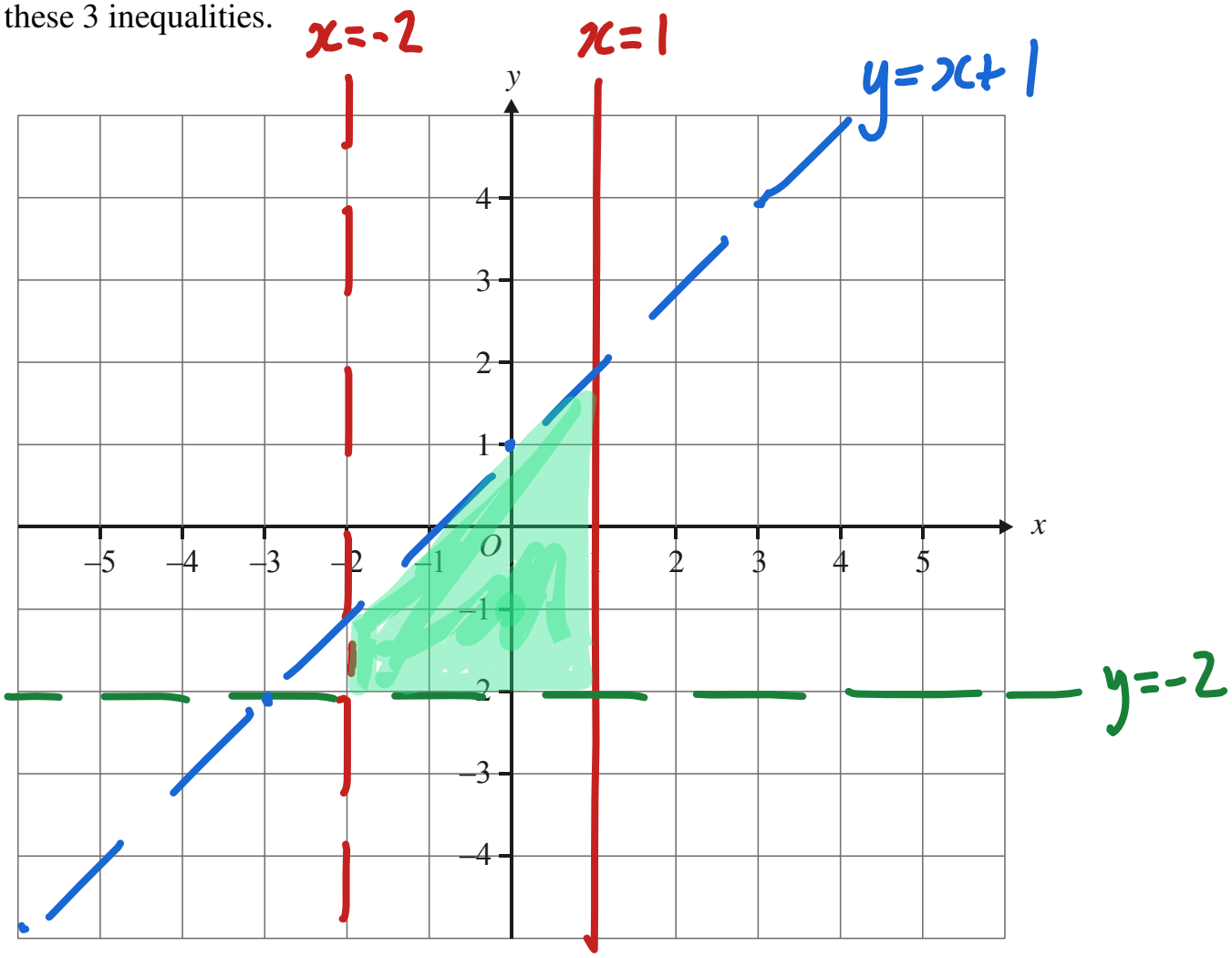


(Total 4 marks)

5. $-2 < x \leq 1$ $y > -2$ $y < x + 1$

x and y are integers.

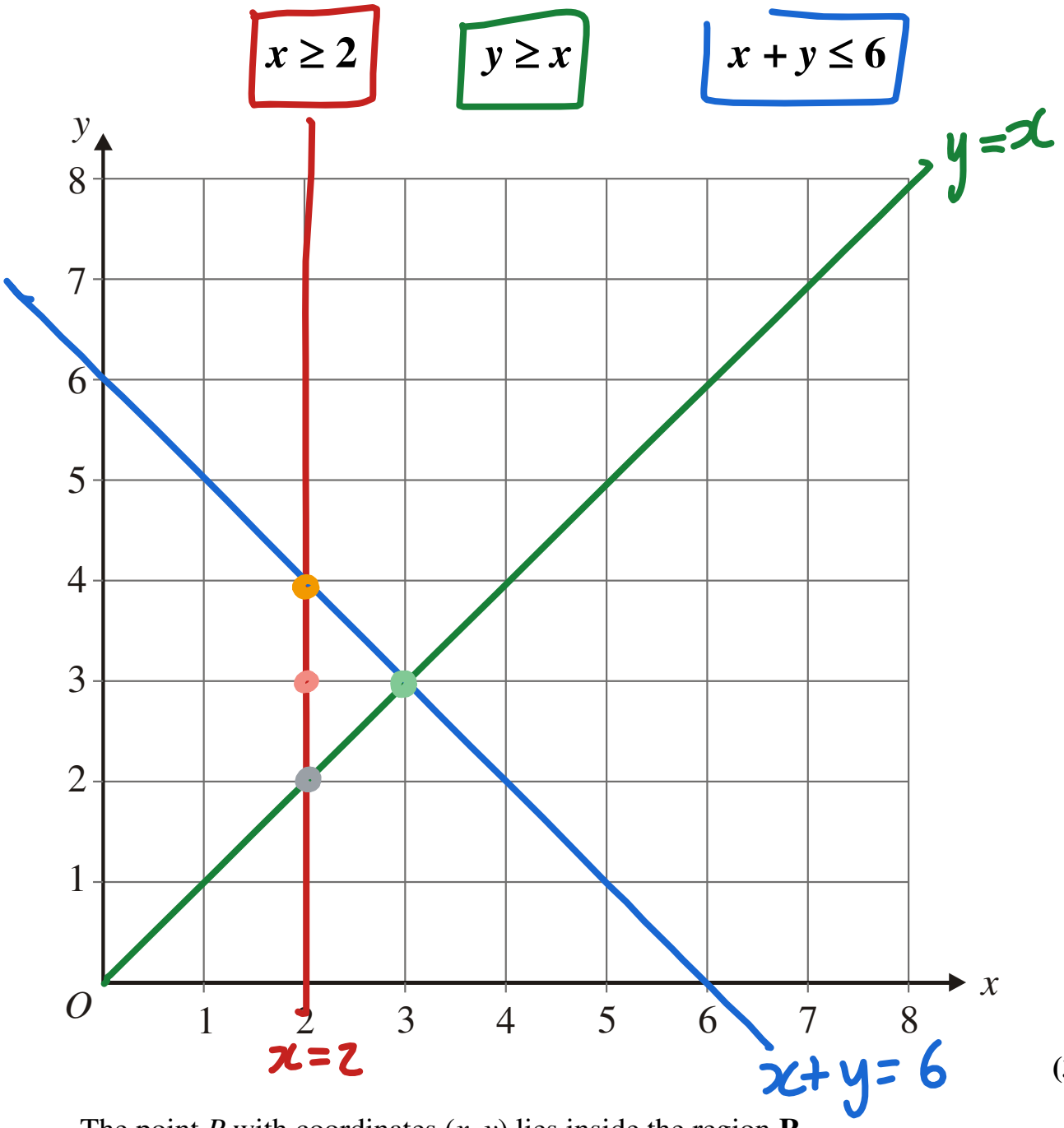
On the grid, mark with a cross (✘), each of the six points which satisfies **all** these 3 inequalities.



(Total 3 marks)

6. (a) On the grid below, draw straight lines and use shading to show the region **R** that satisfies the inequalities

$x \geq 2$ $y \geq x$ $x + y \leq 6$



(3)

The point P with coordinates (x, y) lies inside the region **R**.
x and y are **integers**.

(b) Write down the coordinates of **all** the points of **R** whose coordinates are both integers.

(2,4) (2,3) (2,2) (3,3)

.....

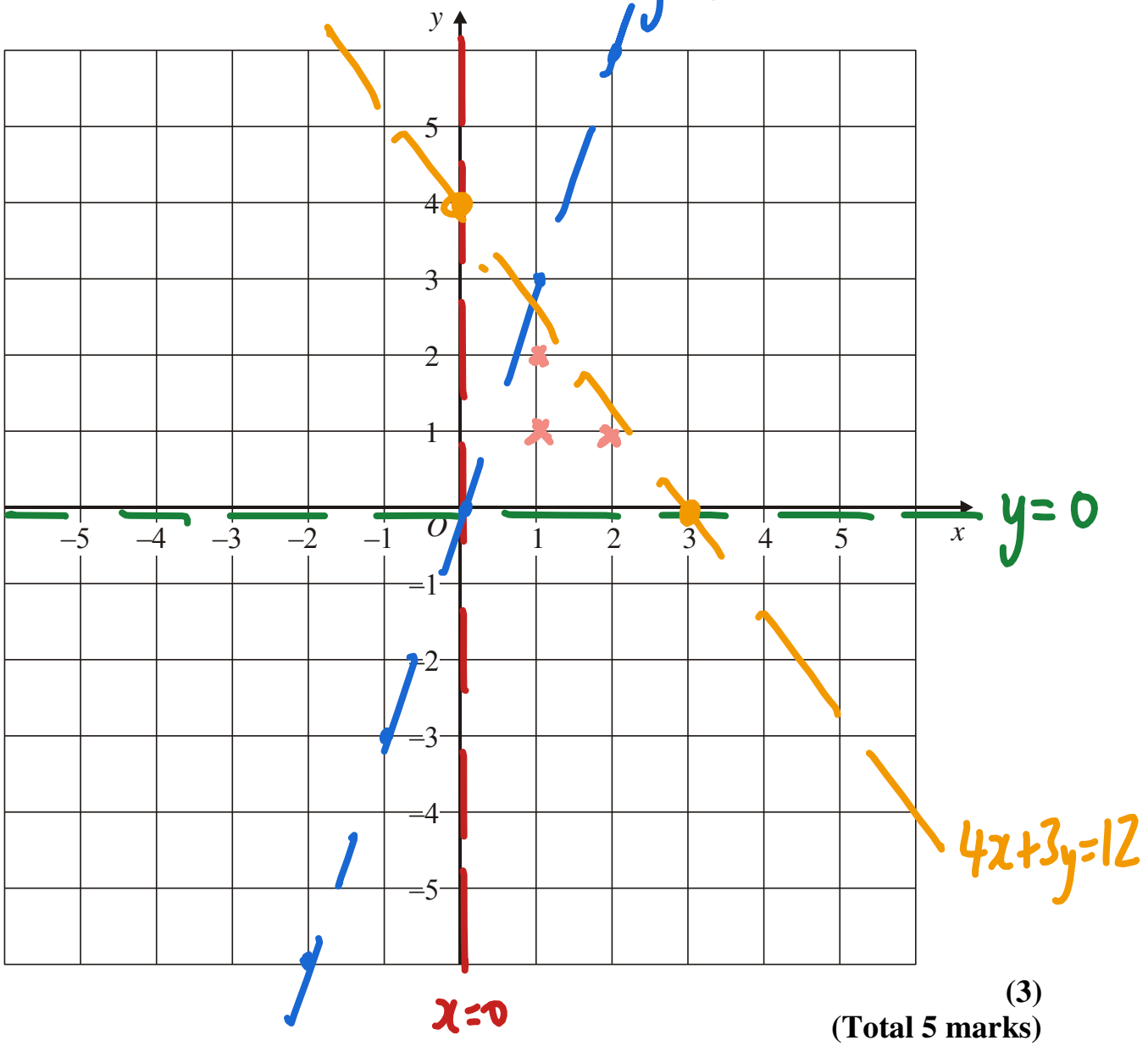
(2)

(Total 5 marks)

7. $4x + 3y < 12$, $y < 3x$, $y > 0$, $x > 0$

x and y are both integers.

On the grid, mark with a cross (×), each of the **three** points which satisfy **all** these four inequalities.



(3)

(Total 5 marks)