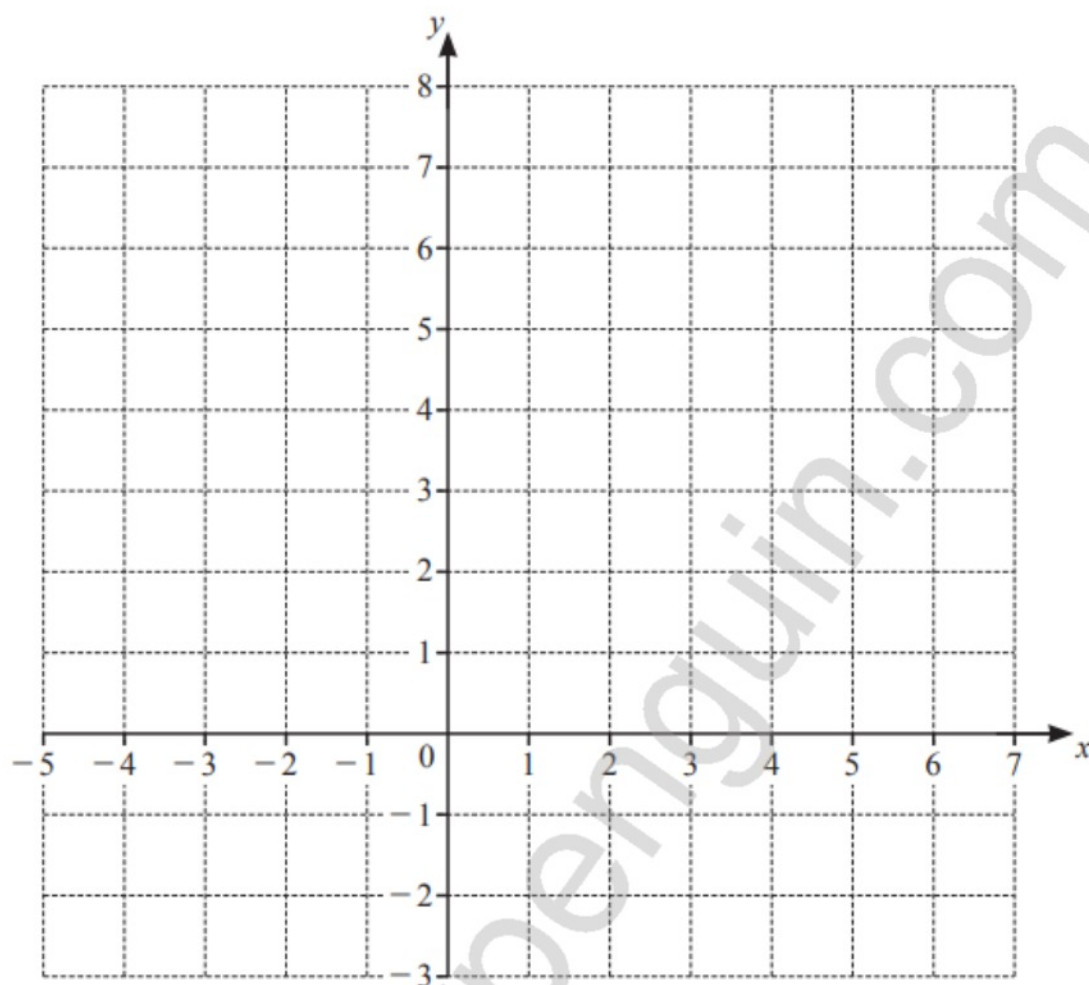




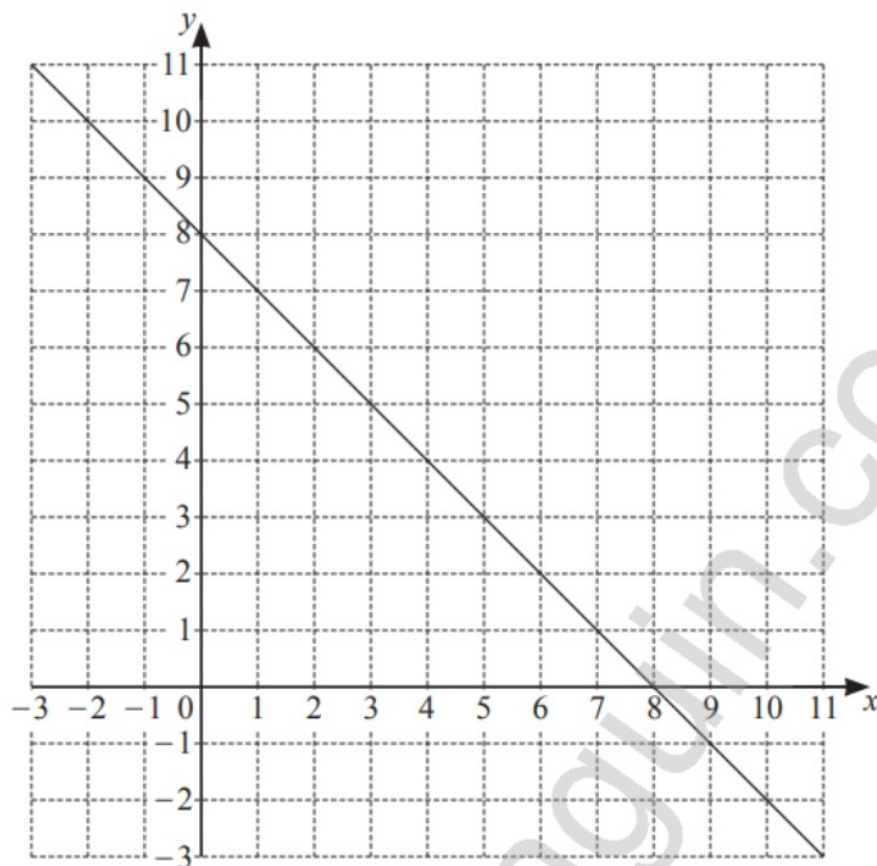
By shading the **unwanted** regions of the grid, draw and label the region R which satisfies these inequalities.

$$y > 1$$

$$x \leq 2$$

$$y \geq x + 2$$

[5]



The diagram shows the line  $x + y = 8$ .

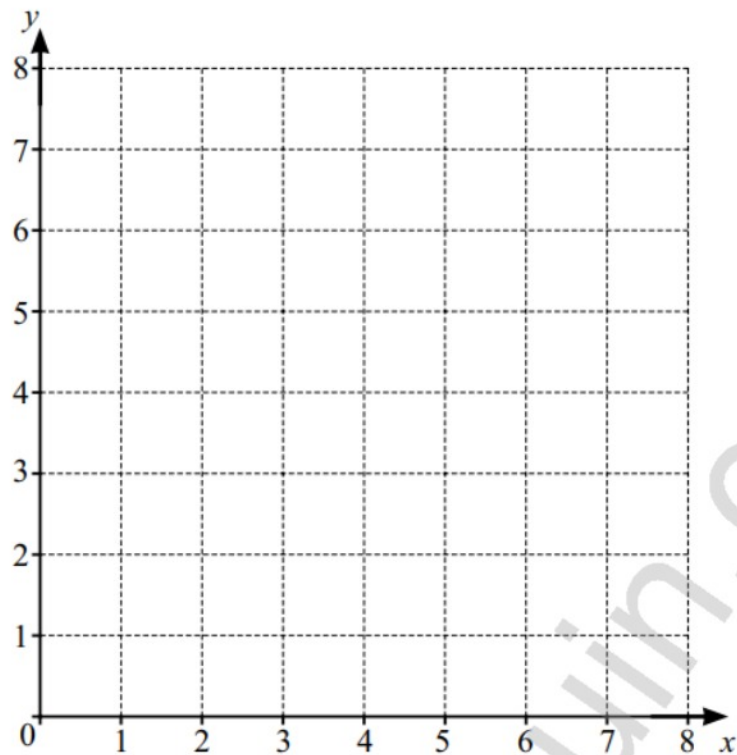
On the diagram, show clearly the region defined by these inequalities.

$$x + y \leq 8$$

$$x \geq 2$$

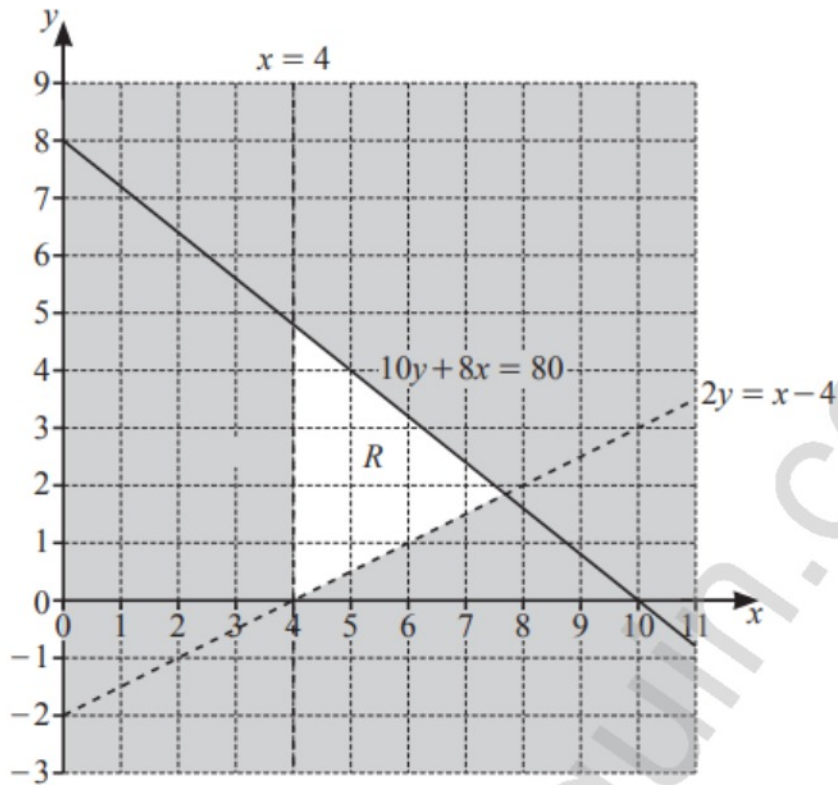
$$y \leq 3$$

[2]



- (a) On the grid, draw the lines  $y = x$  and  $x + y = 7$ . [3]
- (b) Region R satisfies the three inequalities  $y \geq 0$ ,  $y \leq x$  and  $x + y \geq 7$ .  
On the grid, label the region R. [1]

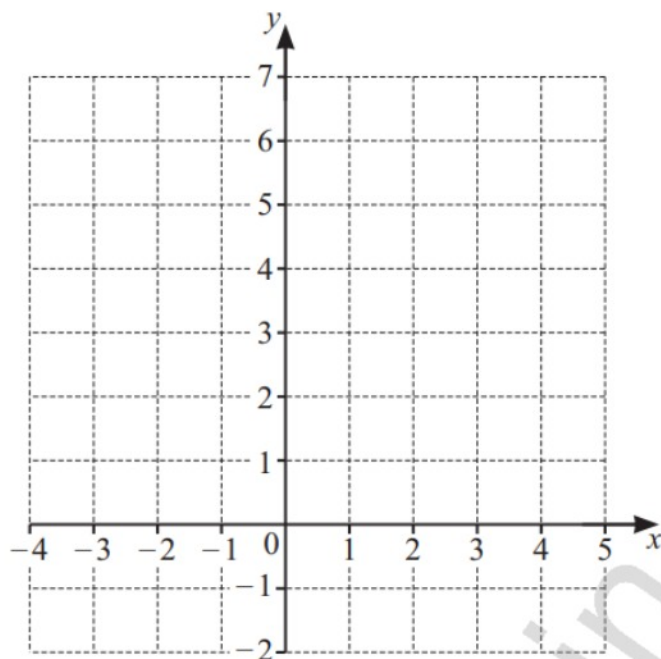
(b)



The region marked  $R$  is defined by three inequalities.

(i) Find these three inequalities.

.....  
.....  
..... [3]



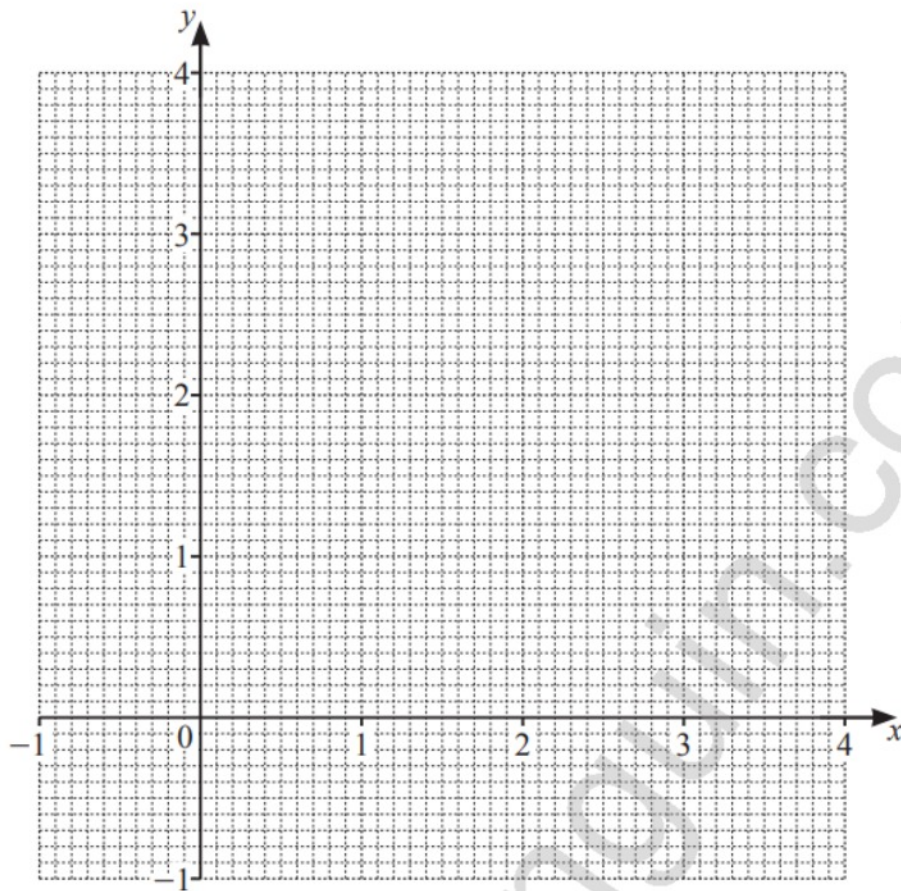
By shading the **unwanted** regions of the grid, draw and label the region  $R$  which satisfies these three inequalities.

$$y < 3$$

$$x \leq 2$$

$$y < x + 3$$

[5]

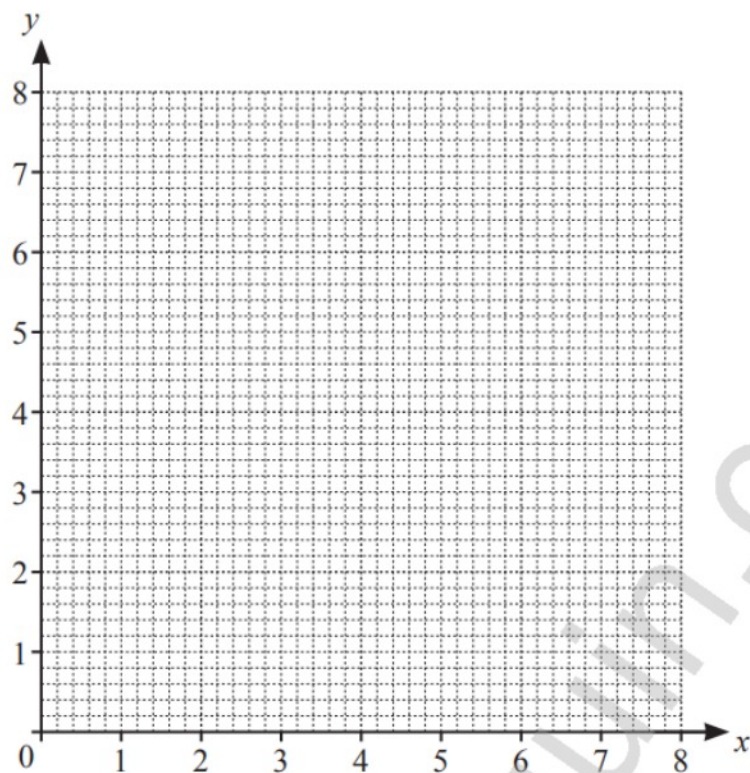


The region  $R$  satisfies these three inequalities.

$$y > 1 \quad y < 2x + 2 \quad x + y \leq 3$$

By drawing three suitable lines, and shading unwanted regions, find and label the region  $R$ .

[5]

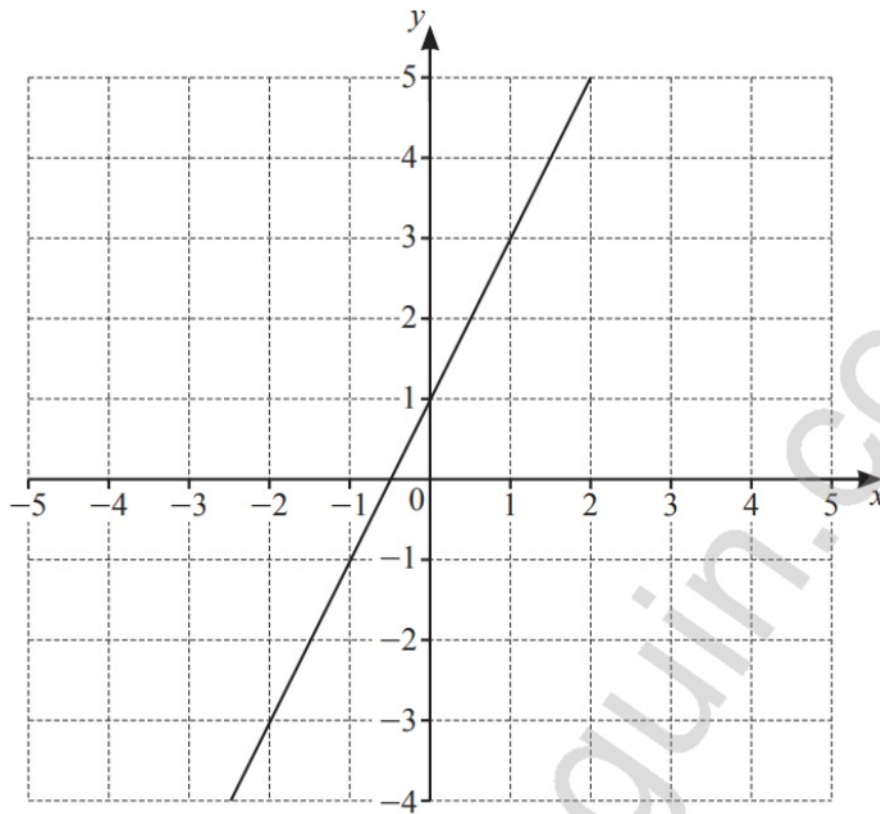


(a) By drawing suitable lines and shading unwanted regions, find the region,  $R$ , where

$$x \geq 2, \quad y \geq x \quad \text{and} \quad 2x + y \leq 8.$$

[5]

- 13 The graph of  $y = 2x + 1$  is drawn on the grid.



By shading the **unwanted** regions of the grid, find and label the region R which satisfies these inequalities.

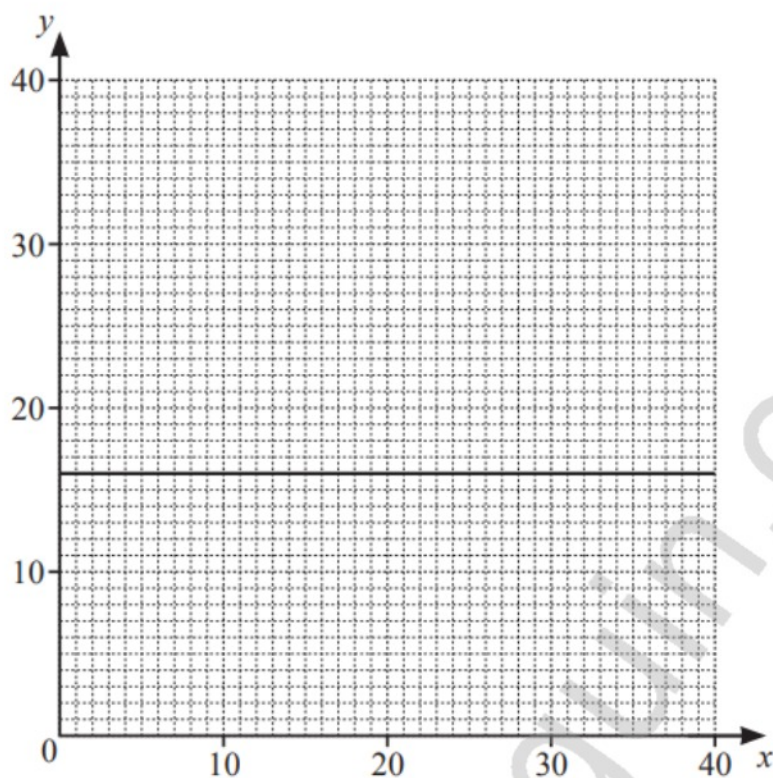
$$y \geq 2x + 1$$

$$y \geq 1$$

$$4x + 3y < 12$$

[4]

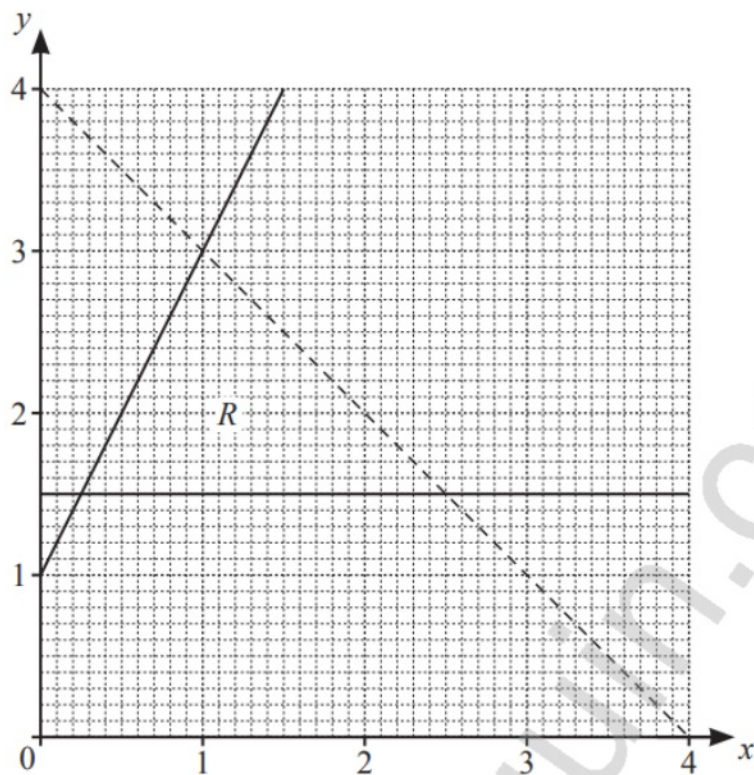
- (c) The line  $y = 16$  is drawn on the grid.



The region  $R$  satisfies the following inequalities.

$$y \geq 16 \quad x > 2 \quad 2x + 3y \geq 72 \quad y \leq 32 - x$$

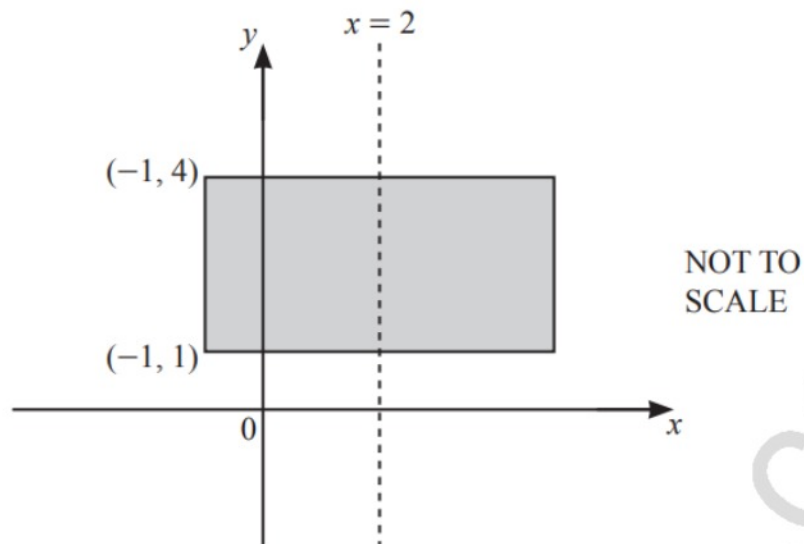
- (i) By drawing three more lines and shading the region **not required**, find and label region  $R$ .  
[6]



Write down the three inequalities that define the region  $R$ .

.....  
.....  
.....

[4]



The diagram shows a rectangle with a line of symmetry at  $x = 2$ .  
Two vertices of the rectangle are at  $(-1, 1)$  and  $(-1, 4)$ .

The shaded region is defined by the inequalities  $a \leq x \leq b$  and  $c \leq y \leq d$ .

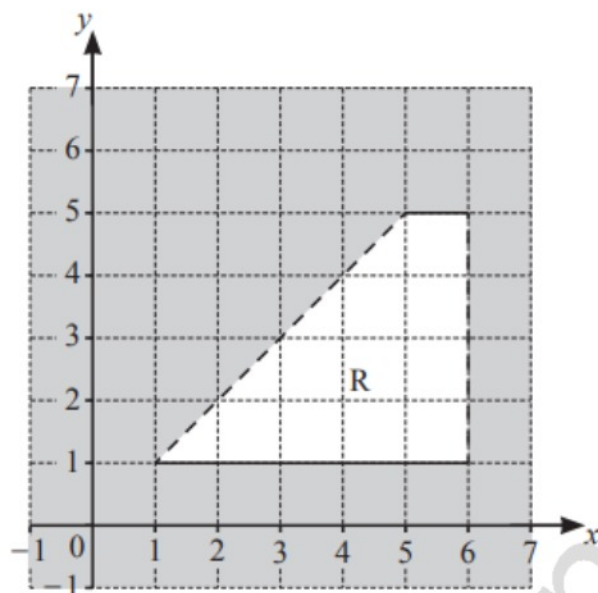
Find the values of  $a$ ,  $b$ ,  $c$  and  $d$ .

$a =$  .....

$b =$  .....

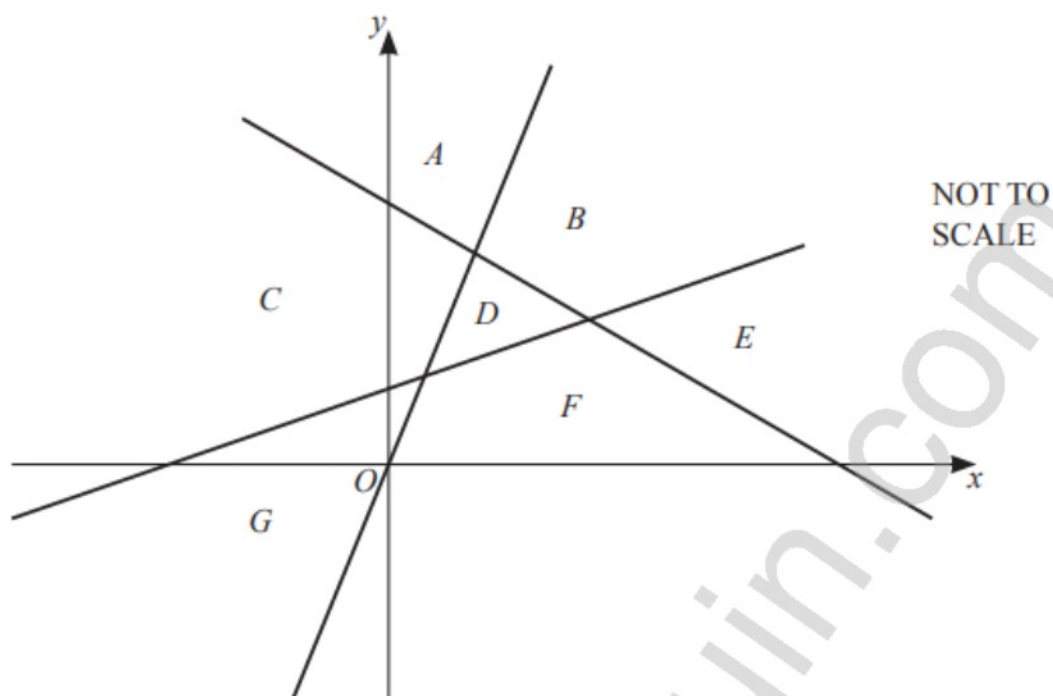
$c =$  .....

$d =$  ..... [2]



Find the inequalities that define the unshaded region, R.

[4]



The diagram shows the lines  $y = \frac{1}{2}x + 1$ ,  $y = 3x$  and  $3x + 4y = 12$ .

These lines divide the space into 7 regions,  $A$ ,  $B$ ,  $C$ ,  $D$ ,  $E$ ,  $F$ , and  $G$ .

Write down the letter of the region which is defined by

(a)  $y \leq \frac{1}{2}x + 1$ ,  $y \leq 3x$  and  $3x + 4y \leq 12$ ,

Region ..... [1]

(b)  $y \geq \frac{1}{2}x + 1$ ,  $y \geq 3x$  and  $3x + 4y \leq 12$ .

Region ..... [1]