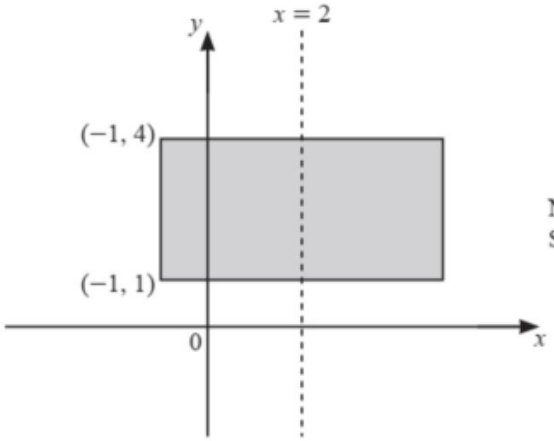
1. The diagram shows a rectangle with a line of symmetry at $x = 2$.



NOT TO SCALE

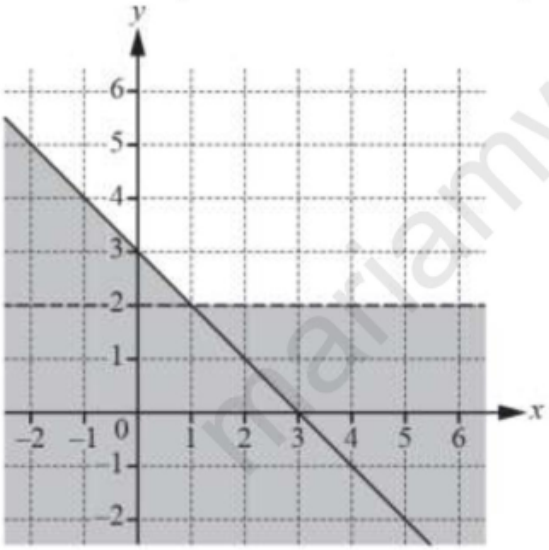
Two vertices of the rectangle are at (-1, 1) and (-1, 4).

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 [2]

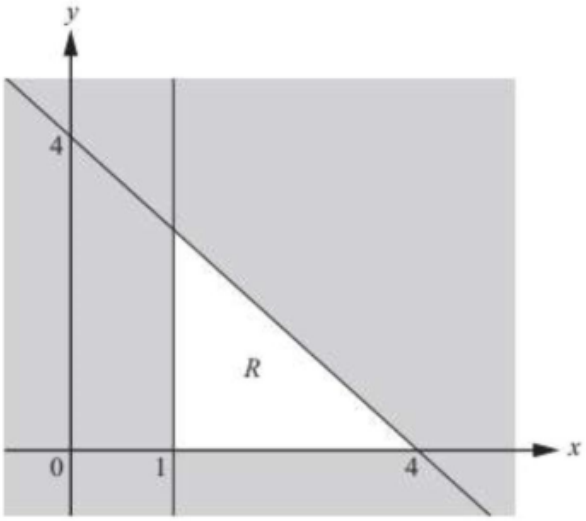
0580/21/O/N/20 Q11)

2. Find the two inequalities that define the region on the grid that is not shaded. [3]



0580/22/M/J/18 Q19

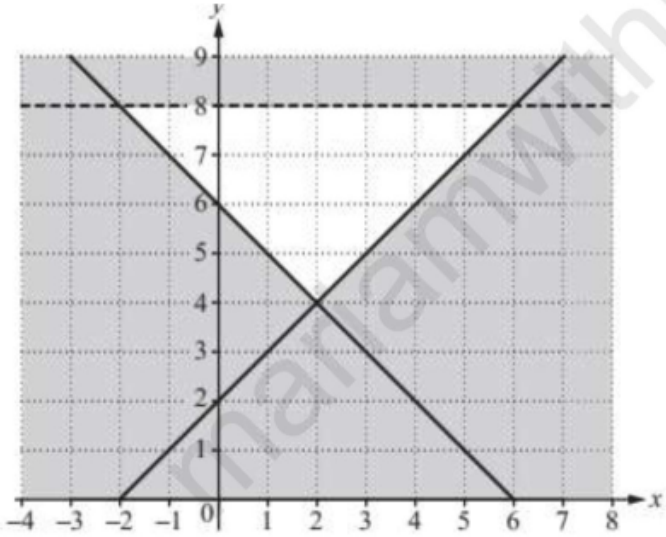
3. Write down the three inequalities that define the unshaded region, R [4]



NOT TO SCALE

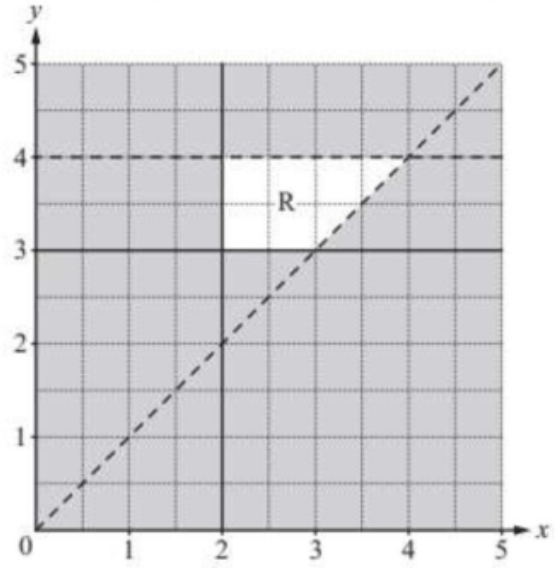
0580/21/O/N/16 Q21)

4. Write down the 3 inequalities which define the unshaded region. [4]



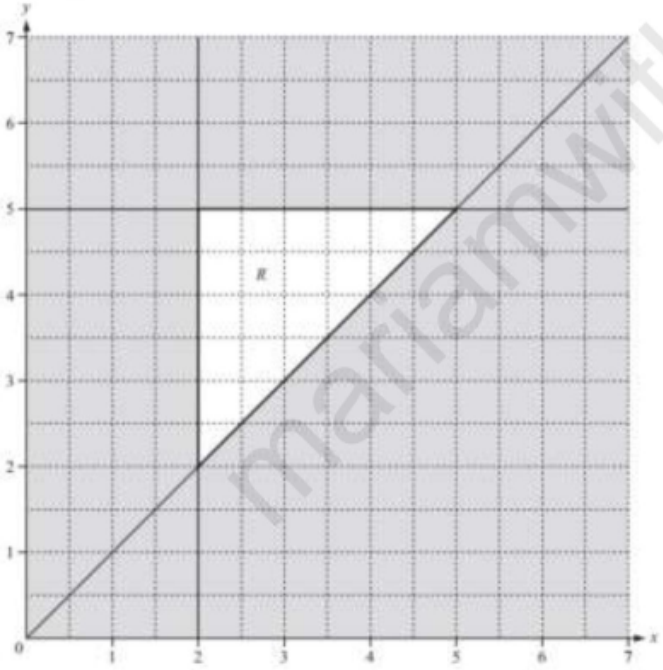
0580/21/M/J/15 Q15)

5. Find four inequalities that define the region, R, on the grid [4]



0580/23/M/J/16 Q20

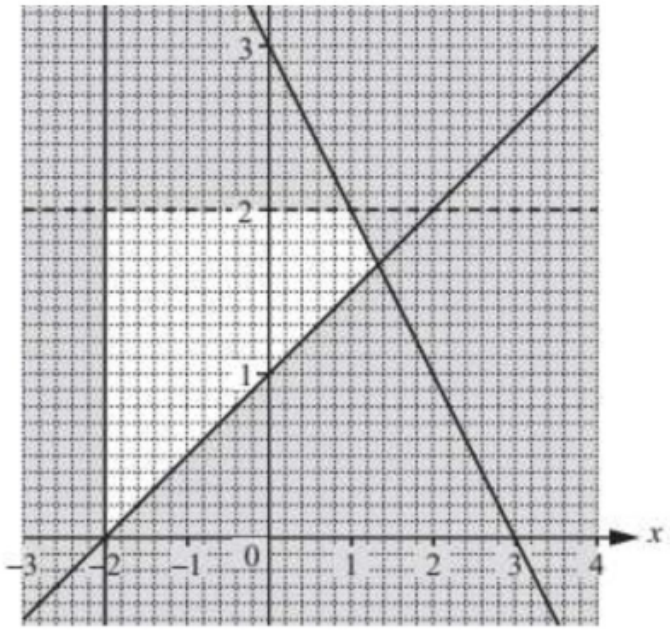
6. The region R is bounded by three lines.



Write down the three inequalities which define the region R. [4]

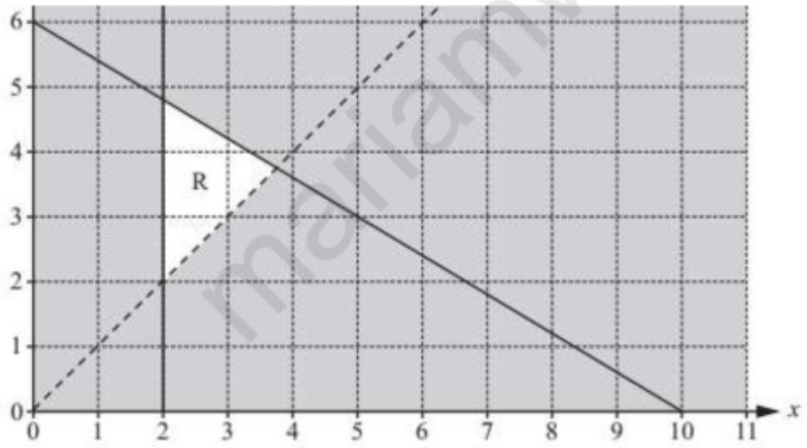
0580/22/O/N/11 Q14)

7. Find the four inequalities that define the region that is not shaded [5]



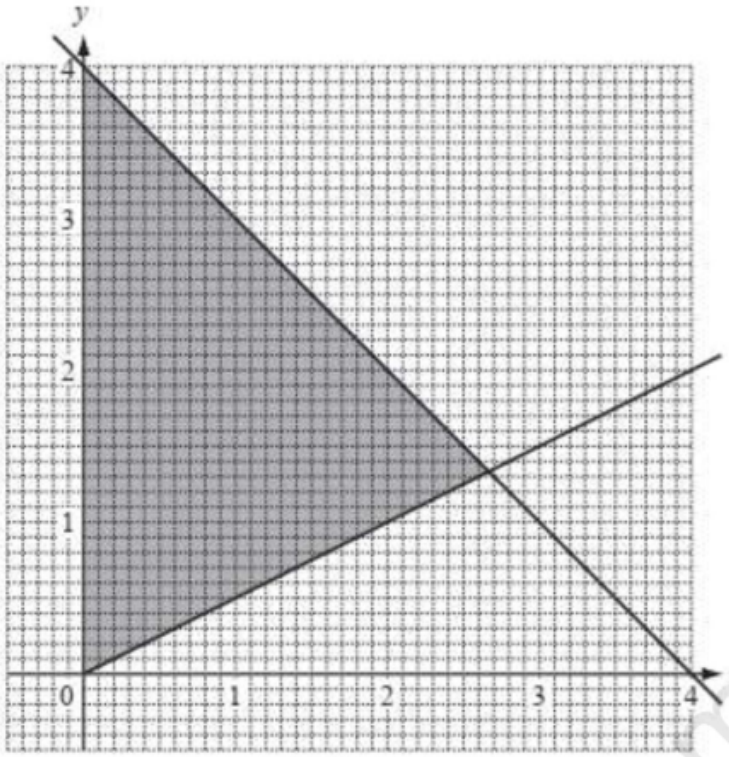
0580/22/F/M/16 Q19)

8. Find the three inequalities that define the unshaded region, R. [5]



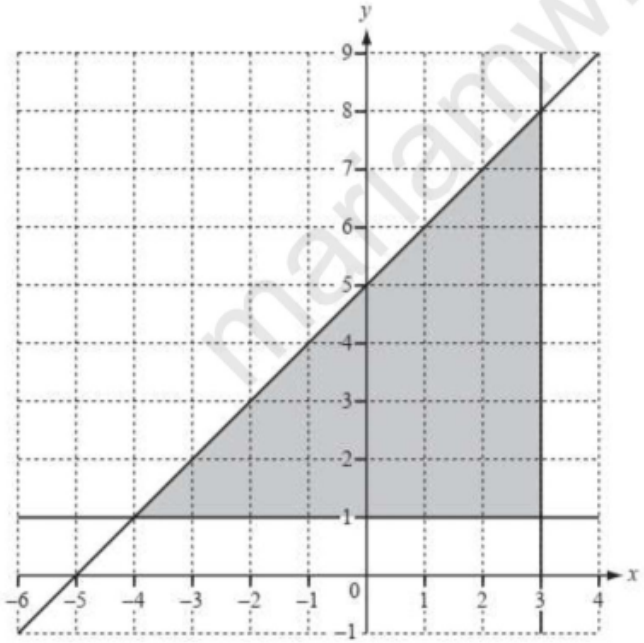
0580/23/O/N/16 Q24)

9. Find the three inequalities which define the shaded region on the grid. [5]



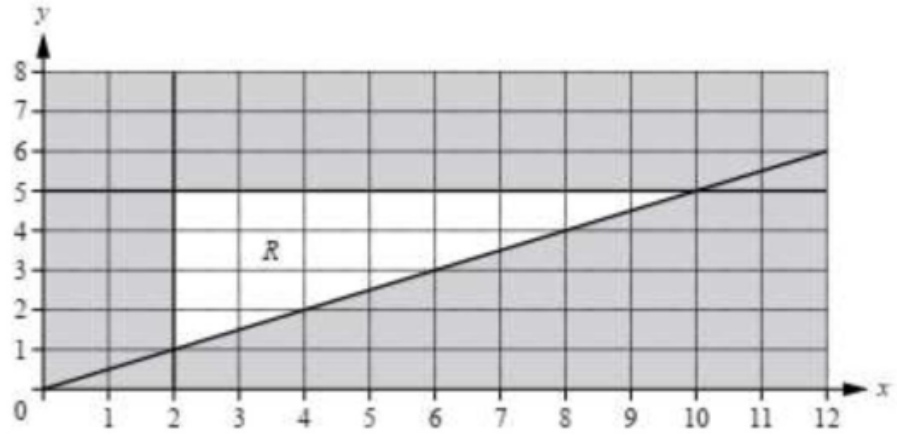
0580/23/M/J/10 Q20)

10. Find the three inequalities which define the shaded triangle in the diagram [5]



0580/23/O/N/10 Q22)

11. (i) Find the three inequalities that define the region R [4]

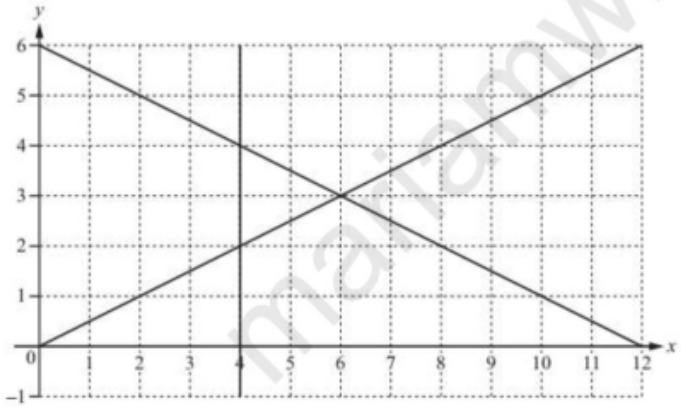


(ii) Find the point (x, y), with integer co-ordinates, inside the region R such that $3x + 5y = 35$. [2]

0580/43/M/J/18 Q9(b)

12. By shading the unwanted regions of the grid, find and label the region R which satisfies the following four inequalities.

$y \geq 0 \qquad x \geq 4 \qquad 2y \leq x \qquad 2y + x \leq 12 \qquad [3]$



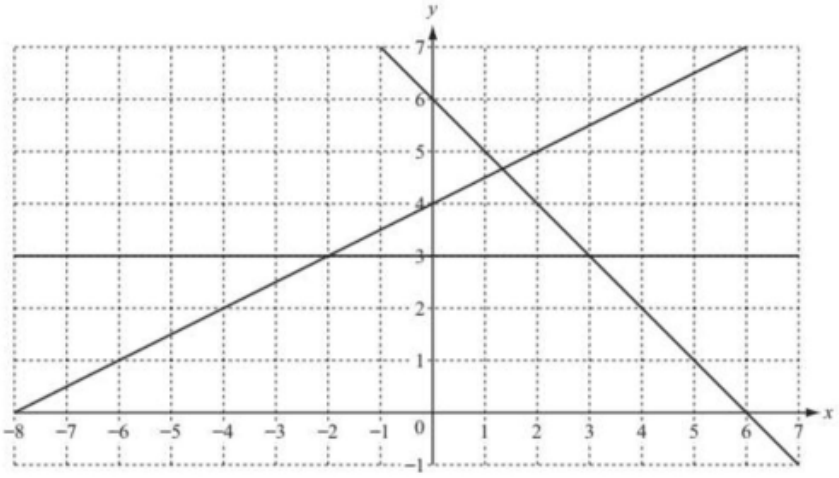
0580/22/O/N/14 Q12)

13. The region **R** contains points which satisfy the inequalities

$y \le \frac{1}{2}x + 4$, $y \ge 3$ and $x + y \ge 6$

On the grid, label with the letter **R** the region which satisfies these inequalities.

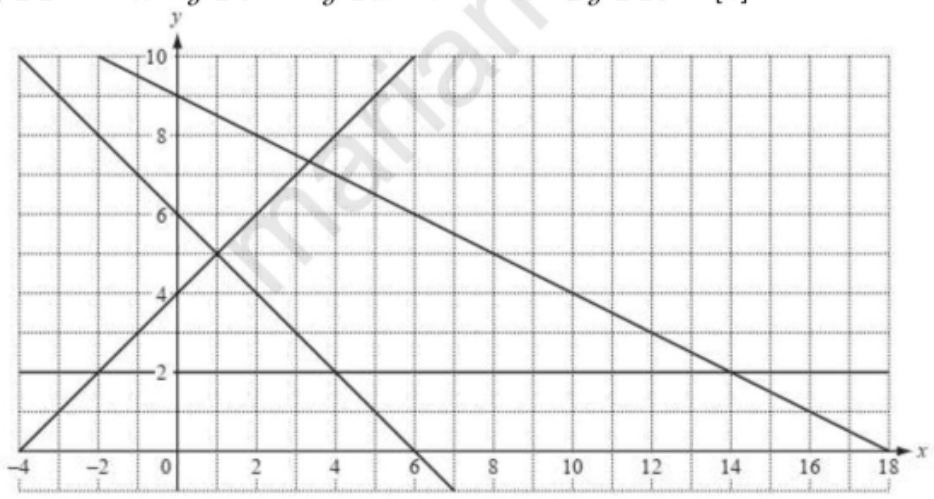
You must shade the **unwanted** regions. [3]



0580/21/M/J/12 Q14)

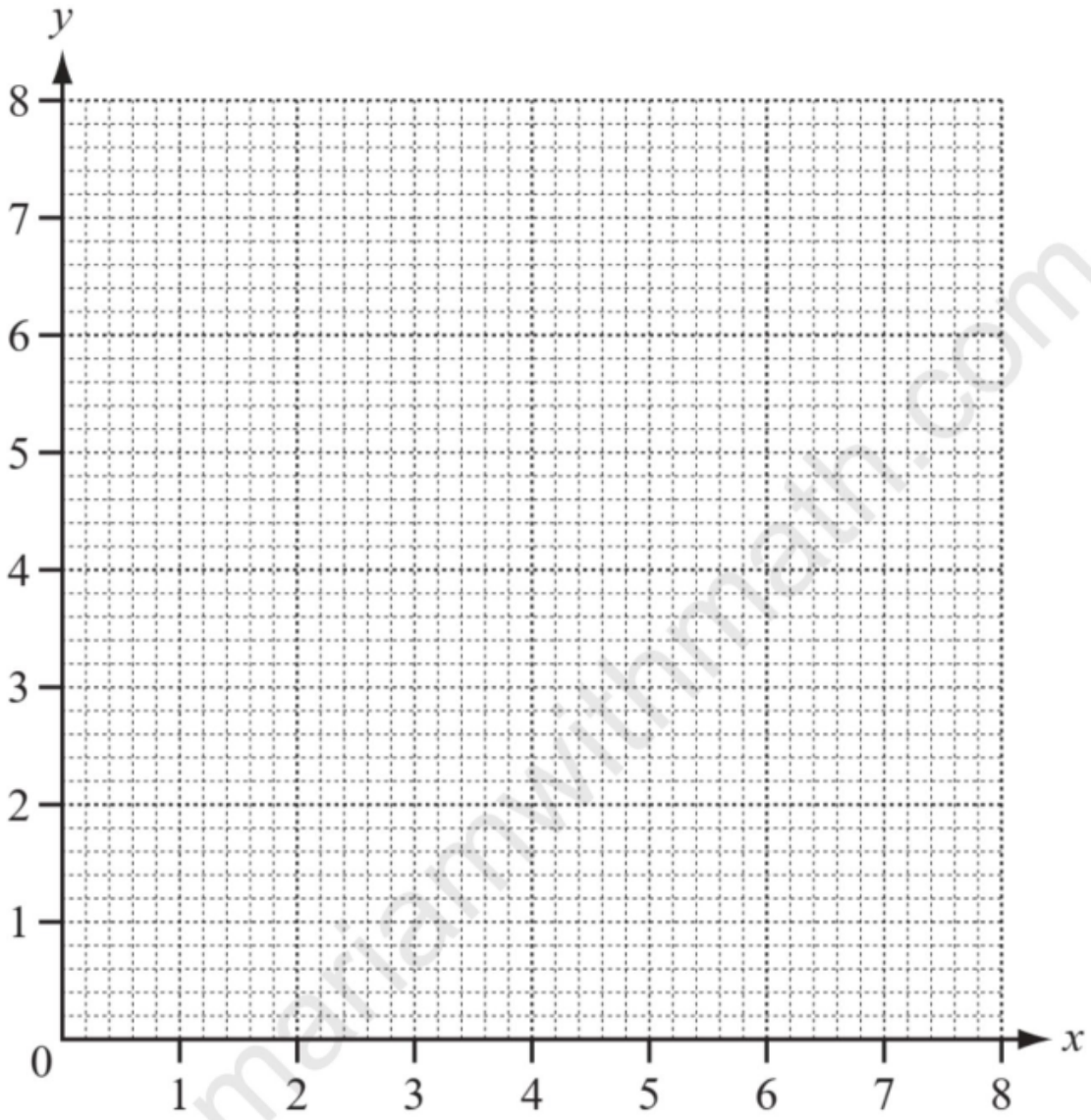
14. By shading the **unwanted** regions of the grid above, find and label the region R which satisfies the following four inequalities.

$y \ge 2$ $x + y \ge 6$ $y \le x + 4$ $x + 2y \le 18$ [4]



0580/22/M/J/10 Q14)

15. (a) Draw the lines $y = 2$, $x + y = 6$ and $y = 2x$ on the grid above. [4]
(b) Label the region R which satisfies the three inequalities
$x + y \geq 6$ $y \geq 2$ $y \leq 2x$ [1]



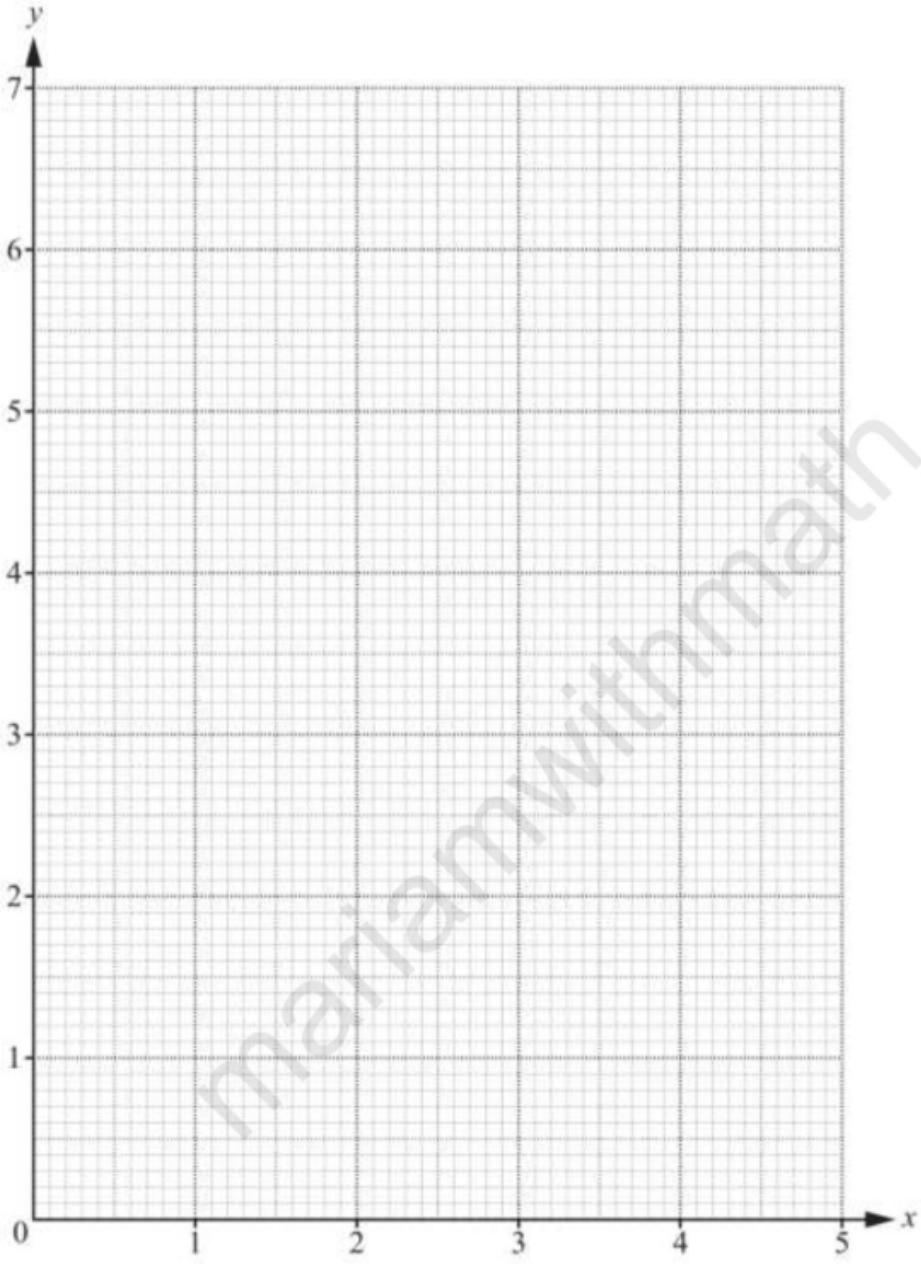
0580/22/O/N/10 Q20)

16. The region *R* satisfies these inequalities.

$y \leq 2x$ $3x + 4y \geq 12$ $x \leq 3$

On the grid, draw and label the region R that satisfies these inequalities.

Shade the **unwanted** regions. [5]



0580/22/M/J/16 Q23)

Answers

Q1) 0580/21/O/N/20 Q11) -1 , 5 , 1, 4

Q2) 0580/22/M/J/18 Q19 $y > 2$ and $y \geq 3 - x$

Q3) 0580/21/O/N/16 Q21) $y \geq 0$, $x \geq 1$ and $y + x \leq 4$

Q4) 0580/21/M/J/15 Q15) $y < 8$, $y \geq 6 - x$ and $y \geq x + 2$

Q5) 0580/23/M/J/16 Q20 $y < 4$, $y \geq 3$, $x \geq 2$, $y > x$

Q6) 0580/22/O/N/11 Q14) $y \leq 5$, $x \geq 2$, $y \geq x$

Q7) 0580/22/F/M/16 Q19) $y < 2$, $x \geq -2$, $y \geq \frac{1}{2}x + 1$ and $y \leq -x + 3$

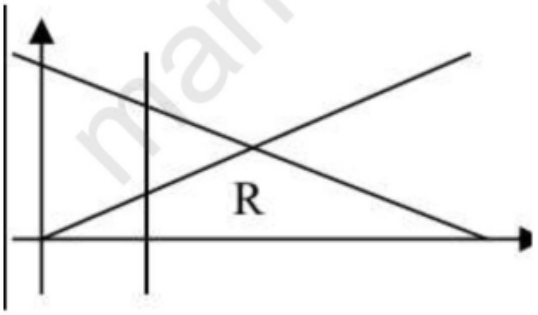
Q8) 0580/23/O/N/16 Q24) $y \leq -\frac{3}{5}x + 6$, $x \geq 2$, $y > x$,

Q9) 0580/23/M/J/10 Q20) $x \geq 0$, $y \geq \frac{1}{2}x$, $x + y \leq 4$

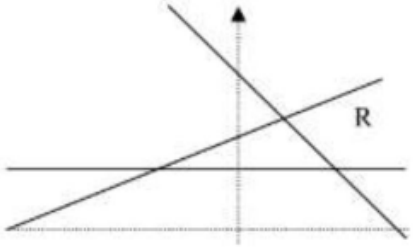
Q10) 0580/23/O/N/10 Q22) $y \geq 1$, $x \leq 3$, $y \leq x + 5$

Q11) 0580/43/M/J/18 Q9(b) (i) $x \geq 2$, $y \leq 5$, $y \geq \frac{1}{2}x$ (ii) (5 , 4)

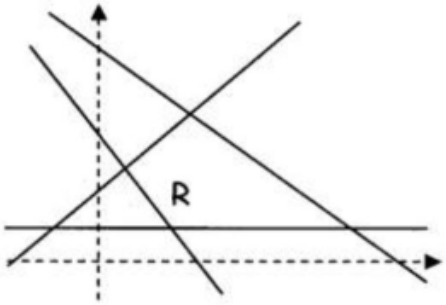
Q12) 0580/22/O/N/14 Q12)



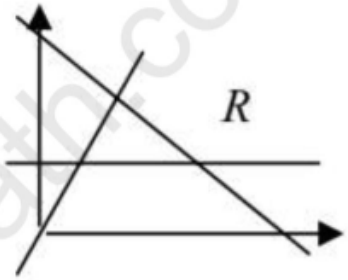
Q13) 0580/21/M/J/12 Q14)



Q14) 0580/22/M/J/10 Q14)



Q15) 0580/22/O/N/10 Q20)



Q16) 0580/22/M/J/16 Q23)