

Inequalities and Regions on Graphs

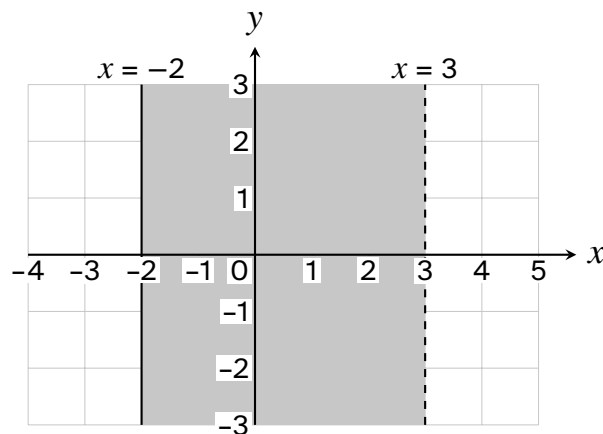
For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **21**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

- 1** The grid shows the lines $x = -2$ and $x = 3$
The region between the lines is shaded.

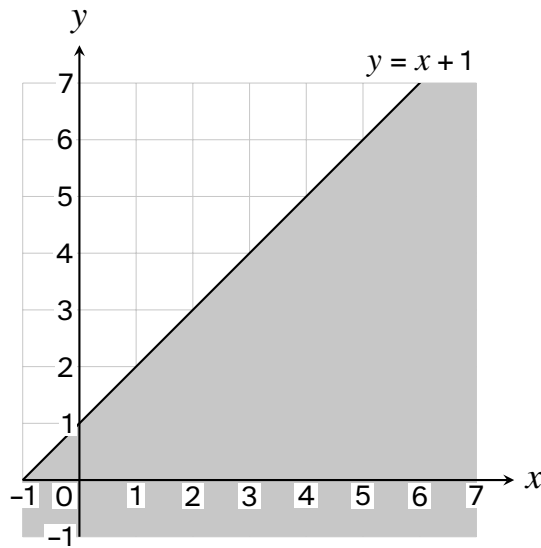


Which inequality describes the shaded region?
Tick **one** box.

[1 mark]

- ☐ $-2 < x \leq 3$
☐ $-2 \leq x < 3$
☐ $-2 \leq y < 3$
☐ $-2 < x < 3$

- 2 The line $y = x + 1$ is drawn on the grid. The region below the line is shaded.



- (a) Write down the inequality that describes the shaded region.

[1 mark]

Answer _____

- (b) Does the point (2, 3) lie in the shaded region?
Tick a box.
Give a reason for your answer.

[1 mark]

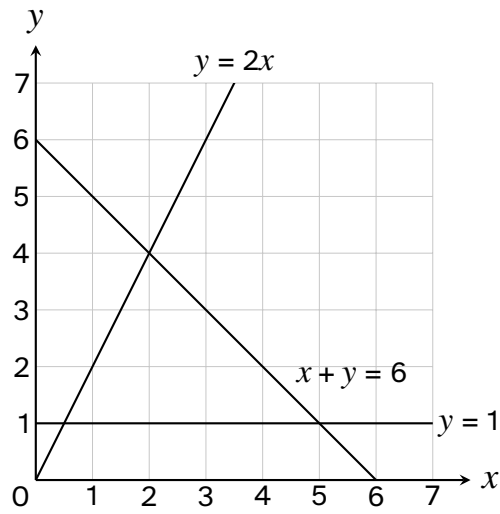
☐ Yes

☐ No

- 3** The lines $y = 1$, $x + y = 6$ and $y = 2x$ are drawn on the grid.

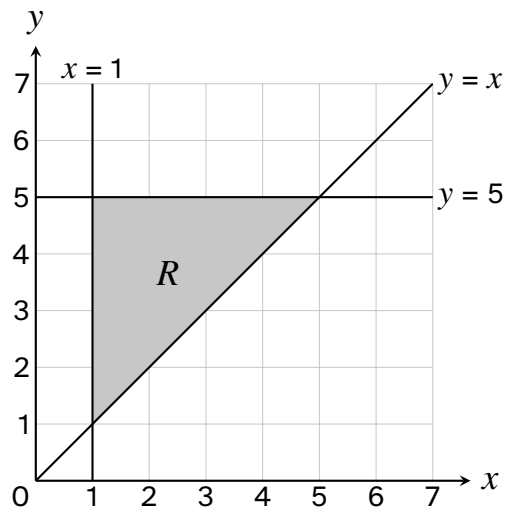
On the grid, shade the region that satisfies all of these inequalities.
Label the region R .

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



[3 marks]

- 4 The region R is shown on the grid.

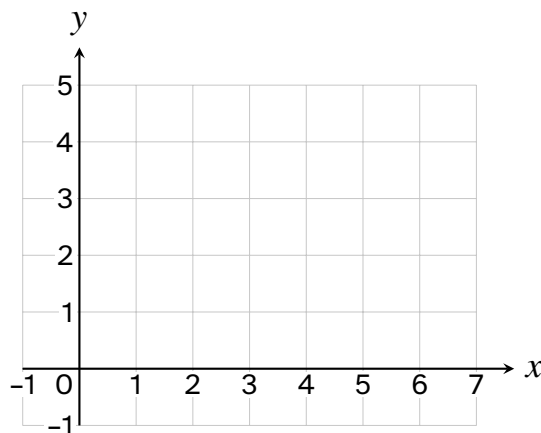


Write down the three inequalities that define the shaded region R .

[3 marks]

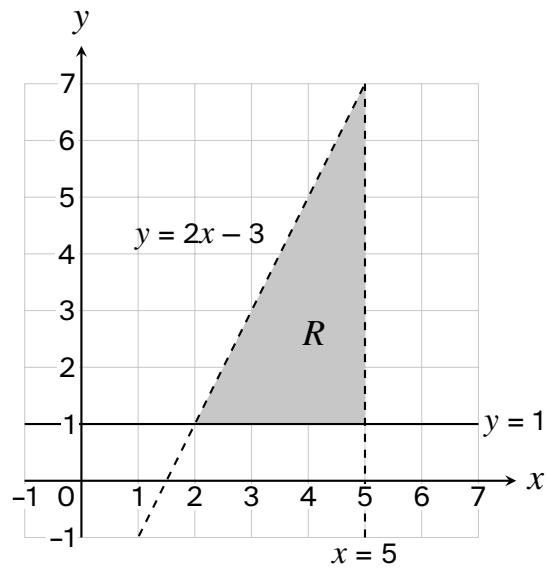
- 5 On the grid, mark with a cross ($\times$) each point with integer coordinates that satisfies all three inequalities.

$$x > 0 \quad y > 0 \quad x + 2y < 6$$



[3 marks]

- 6 The region R is shaded on the grid.



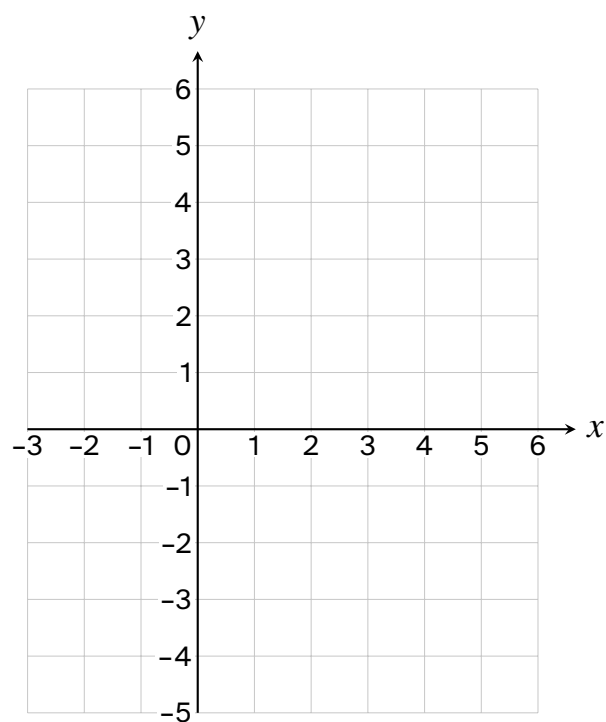
Tomasz says that R is represented by

$$y > 1 \quad \text{and} \quad x < 5 \quad \text{and} \quad y > 2x - 3$$

Write down **two** mistakes that Tomasz has made.

[2 marks]

- 7 On the grid, identify the region represented by
 $x \leq 4$ and $y > -x$ and $y \leq \frac{1}{2}x + 3$
Label the region R .

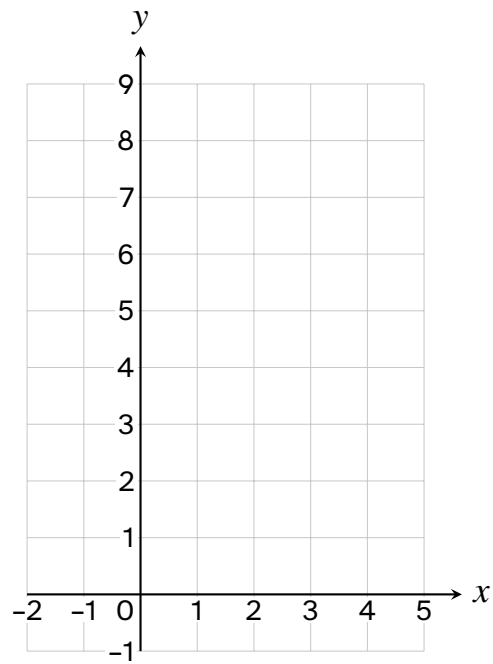


[4 marks]

- 8** On the grid, identify the region represented by

$$-1 \leq x < 3 \quad \text{and} \quad 2 < y \leq 7 - x$$

Label the region R .



[3 marks]