

INEQUALITIES ON GRAPH

WARM
up
3

(a) Simplify $2a^5b^2 \times 3a^3b$.

[2]

(b) Factorise $3a^2 - 6ac$.

[2]

1

On the graph paper provided on the next page, draw the region which satisfies all of the following inequalities.

$$\begin{aligned} x &\geq -3 \\ y &\geq 2x - 1 \\ y &\geq 0 \\ \text{and } y &\leq 3 - x \end{aligned}$$

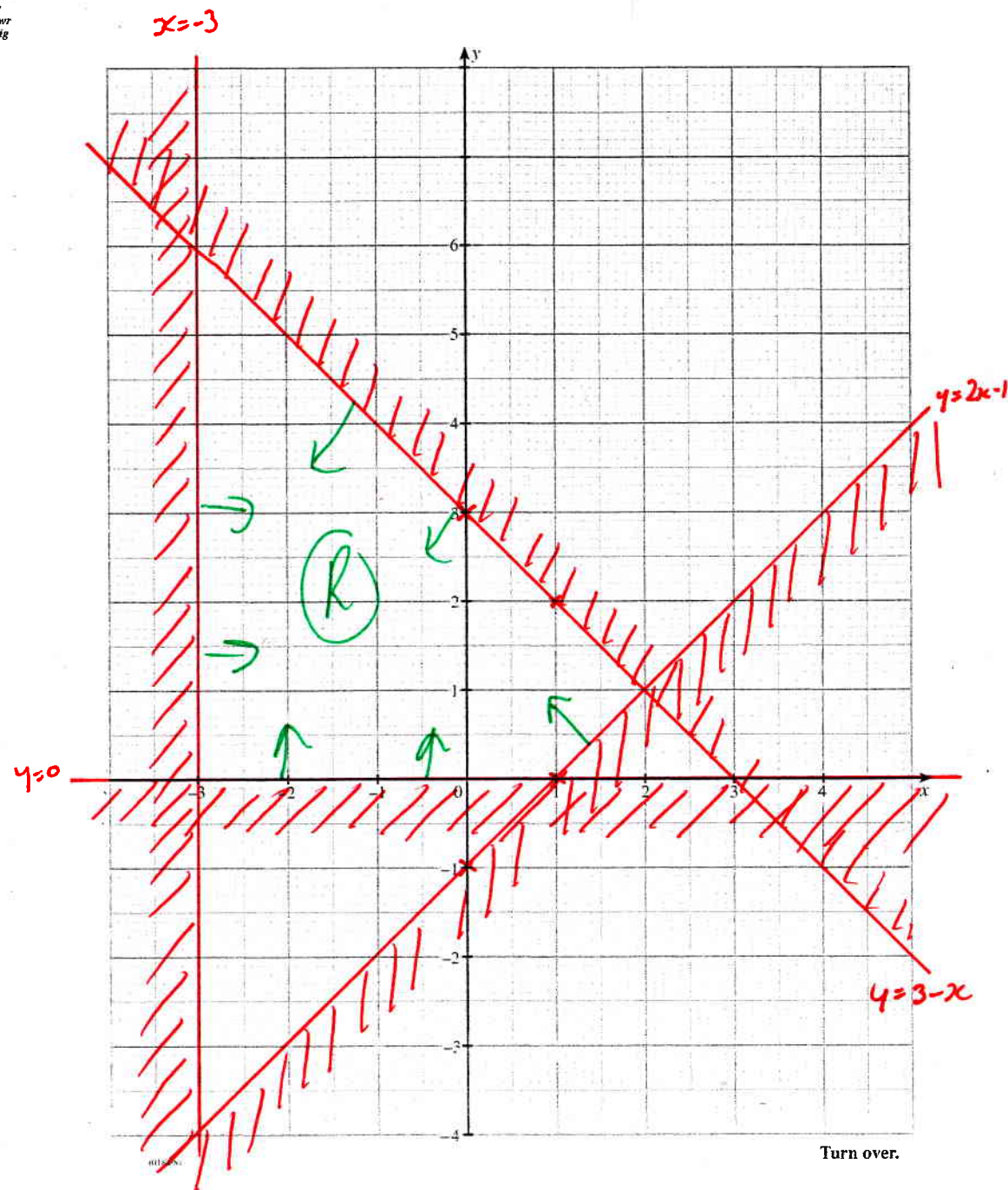
Make sure that you clearly indicate the region that represents your answer.

$$\begin{aligned} y = 2x - 1 \quad \text{when } x = 0 \quad y = -1 \quad (0, -1) \\ x = 1 \quad y = 2 \times 1 - 1 = 1 \quad (1, 1) \end{aligned}$$

$$\begin{aligned} y = 3 - x \quad \text{when } x = 0 \quad y = 3 - 0 = 3 \quad (0, 3) \\ \text{when } x = 1 \quad y = 3 - 1 = 2 \quad (1, 2) \end{aligned}$$

[4]

Examiner
only
Arbiter
yn unig



Turn over.

2

On the graph paper opposite, draw the region which satisfies all of the following inequalities.

$$\begin{aligned} x+y &\leq 8 \\ y &\geq 2x-1 \\ x &\geq 0 \end{aligned}$$

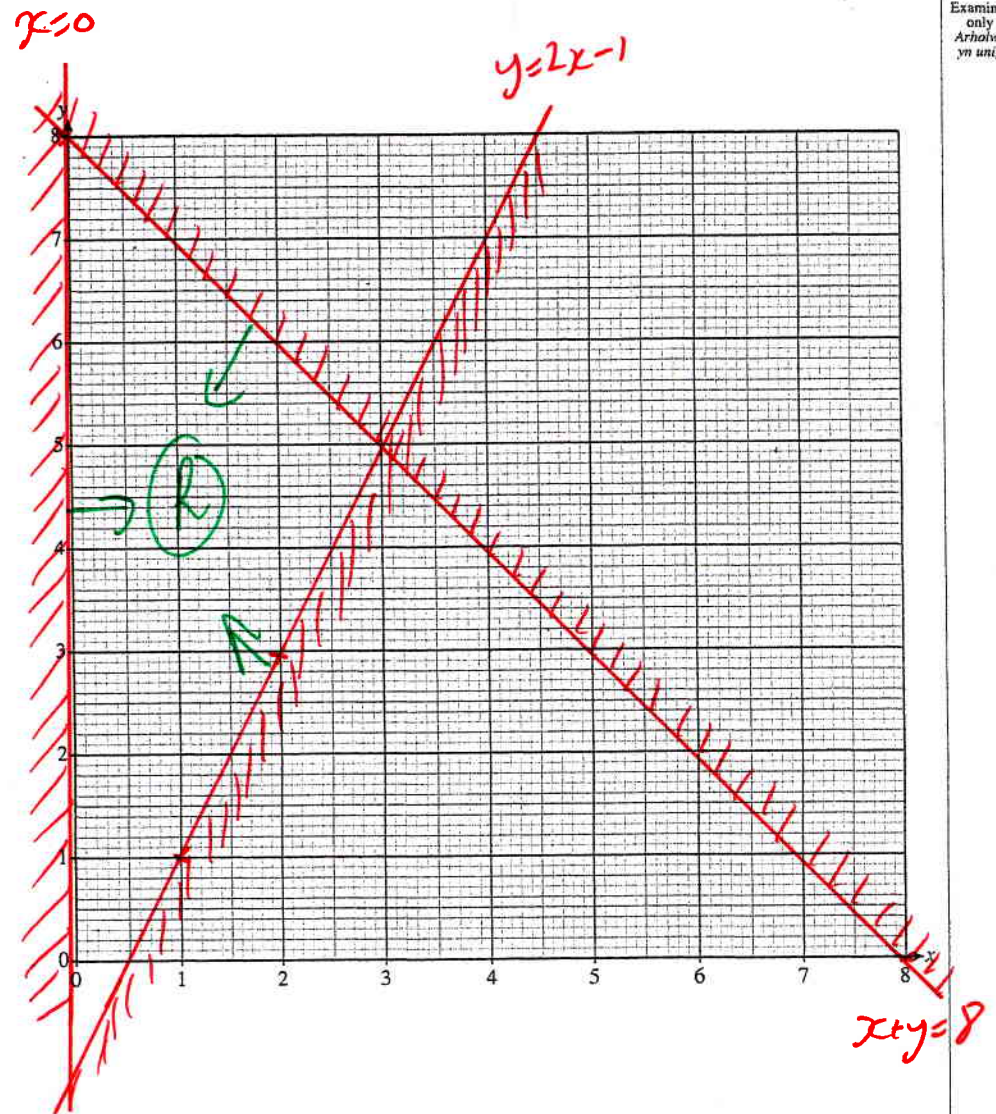
Make sure that you clearly indicate the region that represents your answer.

$$\begin{aligned} x+y=8 \quad x=0 \quad y=8 \quad (0,8) \\ y=0 \quad x=8 \quad (8,0) \end{aligned}$$

$$\begin{aligned} y=2x-1 \quad x=0 \quad y=-1 \quad (0,-1) \\ x=1 \quad y=2(1)-1 \quad (1,1) \\ x=2 \quad y=2(2)-1 \quad (2,3) \end{aligned}$$

[3]

Examiner
only
Arholwr
yn unig



Examiner
only
Arholwr
yn unig

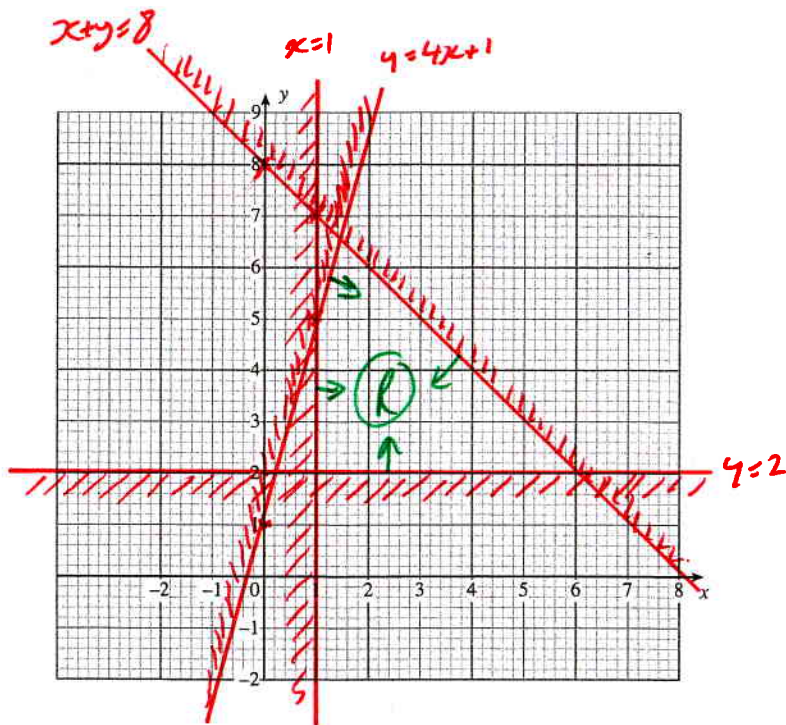
- ③ On the graph paper provided, draw the region which satisfies **all** of the following inequalities.

$$\begin{aligned} x + y &\leq 8 \\ y &\leq 4x + 1 \\ x &\geq 1 \\ y &\geq 2 \end{aligned}$$

Make sure that you clearly indicate the region that represents your answer.

$$\begin{aligned} x + y = 8 \quad x = 0 \quad 0 + y = 8 \quad (0, 8) \\ x = 1 \quad 1 + y = 8 \quad y = 7 \quad (1, 7) \end{aligned}$$

$$\begin{aligned} y = 4x + 1 \quad x = 0 \quad y = 1 \quad (0, 1) \\ x = 1 \quad y = 5 \quad (1, 5) \end{aligned}$$



[4]

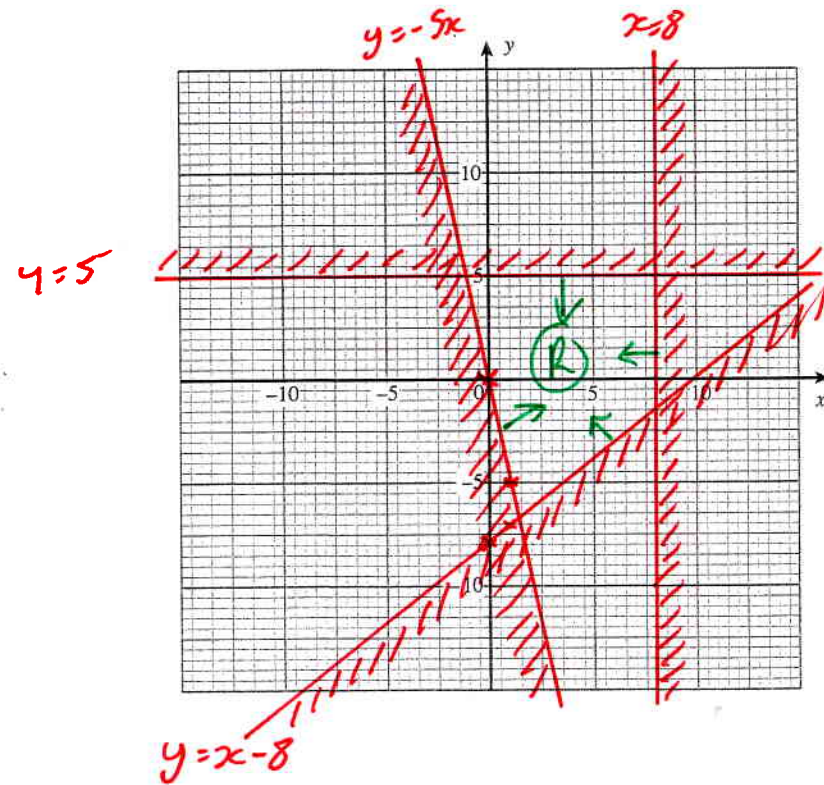
- ④ On the graph paper below, draw the region which satisfies **all** of the following inequalities.

$$\begin{aligned} y &\leq 5 \\ y &\geq x - 8 \\ x &\leq 8 \\ y &\geq -5x \end{aligned}$$

Make sure that you clearly indicate the region that represents your answer.

$$\begin{aligned} y = x - 8 \quad \text{when } x = 0 \quad y = -8 \quad (0, -8) \\ \text{when } x = 1 \quad y = 1 - 8 = -7 \quad (1, -7) \end{aligned}$$

$$\begin{aligned} y = -5x \quad \text{when } x = 0 \quad y = 0 \quad (0, 0) \\ \text{when } x = 1 \quad y = -5 \quad (0, -5) \end{aligned}$$



[4]