



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Inequalities · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Inequalities

Total marks available: 101

● Inequalities

Q1

[3 marks]

Solve $-2(x - 4) < 18$

Q2

[3 marks]

Solve $3x - 11 \leq -x - 35$

Q3

[4 marks]

(a) Solve $-3 \leq 4x + 5 < 13$.

(b) Show your solution to part (a) on the number line.



A large dashed rectangular box for showing the solution to part (a) on the number line.

Q4

[3 marks]

Solve $9y - 12 > -5y + 44$

A large dashed rectangular box for showing the solution to the inequality.

Q5

[3 marks]

Solve $5y - 9 \leq -3y + 39$

Q6

[4 marks]

(a) Solve $-6 \leq 2x - 4 \leq 2$.

(b) Show your solution to part (a) on the number line.



Q7

[3 marks]

Solve $-4n - 2 \leq 6n - 62$

Q8

[4 marks]

(a) Solve $-6 < 3x \leq 3$.

(b) Show your solution to part (a) on the number line.



Q9

[3 marks]

Solve $-4(y + 6) \leq 4$

Q10

[3 marks]

Solve $-3(y - 3) > 15$

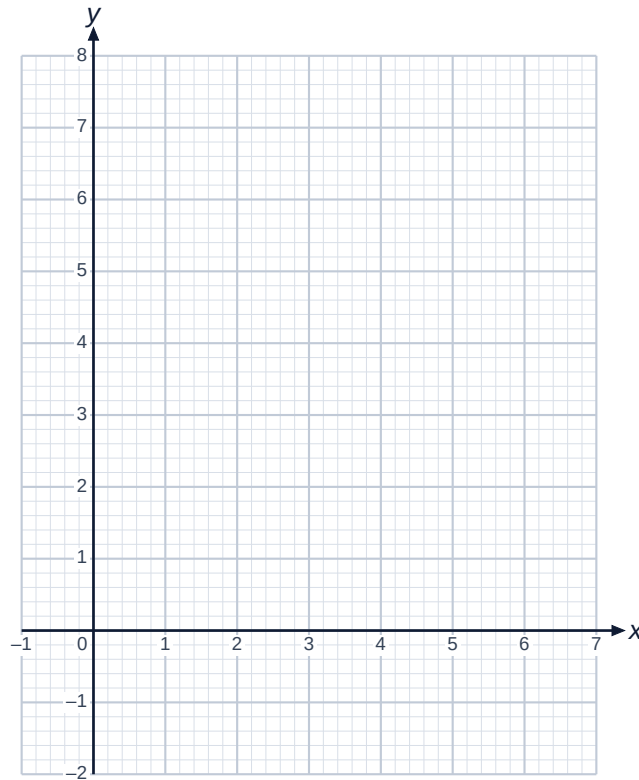
Q11

[5 marks]

(a) On the grid, draw suitable lines and shade the region R that satisfies all three inequalities $y > 1$ $x > 2$ $x + y < 6$

Use a solid line for a boundary that is included and a dashed line for one that is not. Label the region R.

(b) How many points with integer coordinates lie in R?



Q12

[2 marks]

Solve $\frac{x}{3} + 8 < 8$

Q13

[2 marks]

Solve $\frac{x}{6} - 7 > -2$

Q14

[3 marks]

Solve $18 < -2x + 10 < 24$

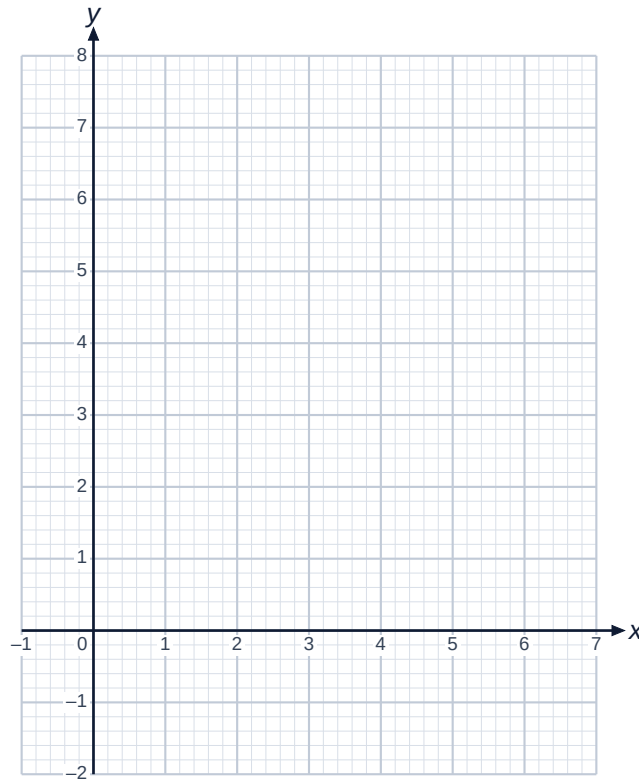
Q15

[5 marks]

(a) On the grid, draw suitable lines and shade the region R that satisfies all three inequalities
 $y \geq 2$ $x > 2$ $x + y < 7$

Use a solid line for a boundary that is included and a dashed line for one that is not. Label the region R.

(b) How many points with integer coordinates lie in R?



Q16

[3 marks]

Solve $-27 < -4x + 1 < -3$

Q17

[2 marks]

Solve $\frac{x}{4} - 6 < -1$

Q18

[3 marks]

Solve $0 < -3x - 6 < 9$

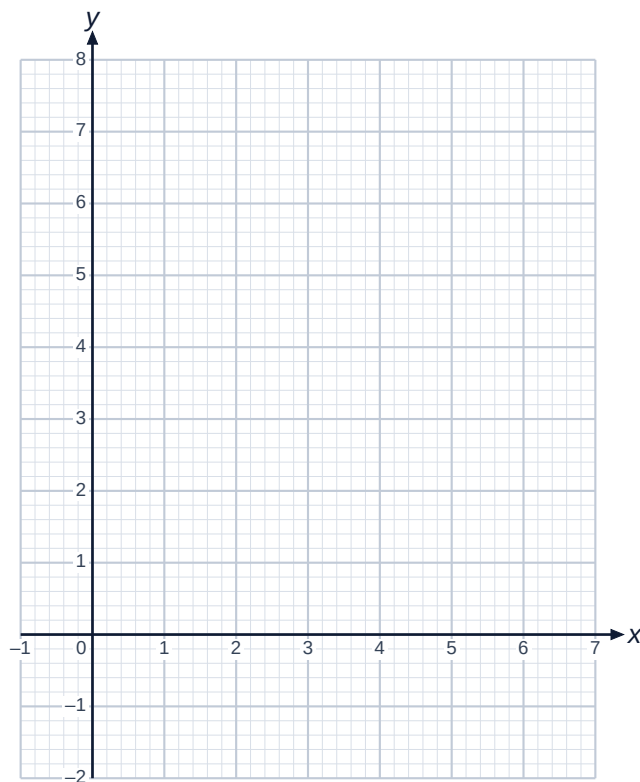
Q19

[5 marks]

(a) On the grid, draw suitable lines and shade the region R that satisfies all three inequalities $y \leq 5$ $x \geq 1$ $y > 2x - 1$

Use a solid line for a boundary that is included and a dashed line for one that is not. Label the region R.

(b) How many points with integer coordinates lie in R?



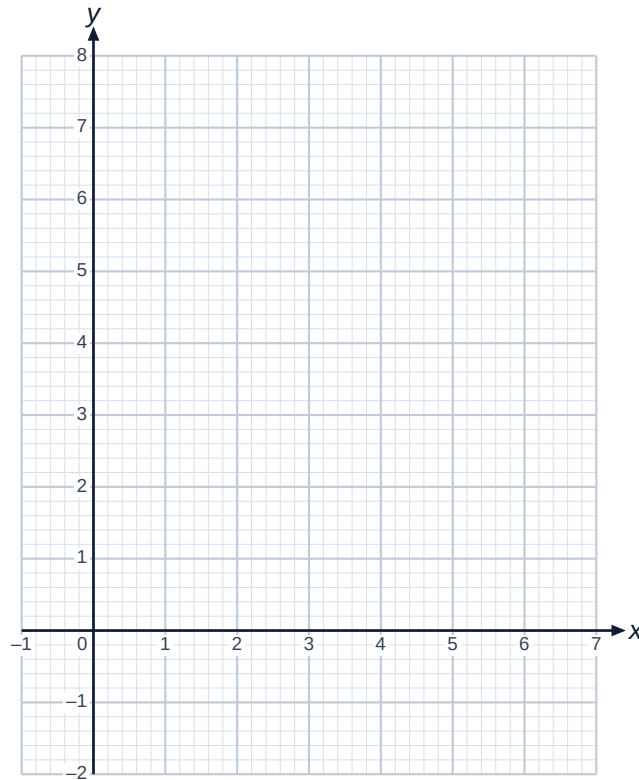
Q20

[5 marks]

(a) On the grid, draw suitable lines and shade the region R that satisfies all three inequalities $y > -1$ $x \geq 2$ $x + y < 5$

Use a solid line for a boundary that is included and a dashed line for one that is not. Label the region R.

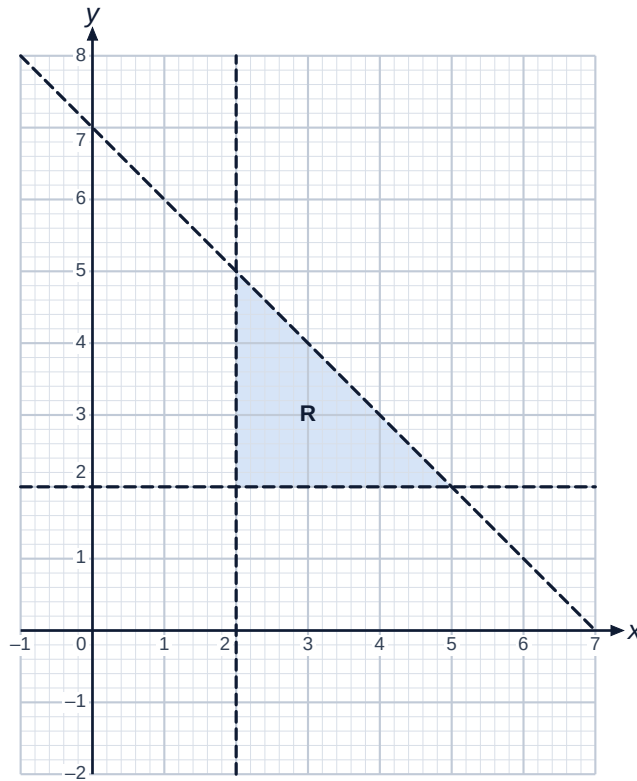
(b) How many points with integer coordinates lie in R?



Q21

[3 marks]

The region R is shaded on the grid.
Solid lines are included in the region; dashed lines are not included.
Write down the three inequalities that define the region R.



Q22

[4 marks]

Solve $x^2 - 9x + 18 \leq 0$

Q23

[4 marks]

Solve $x^2 + 7x < 0$

Q24

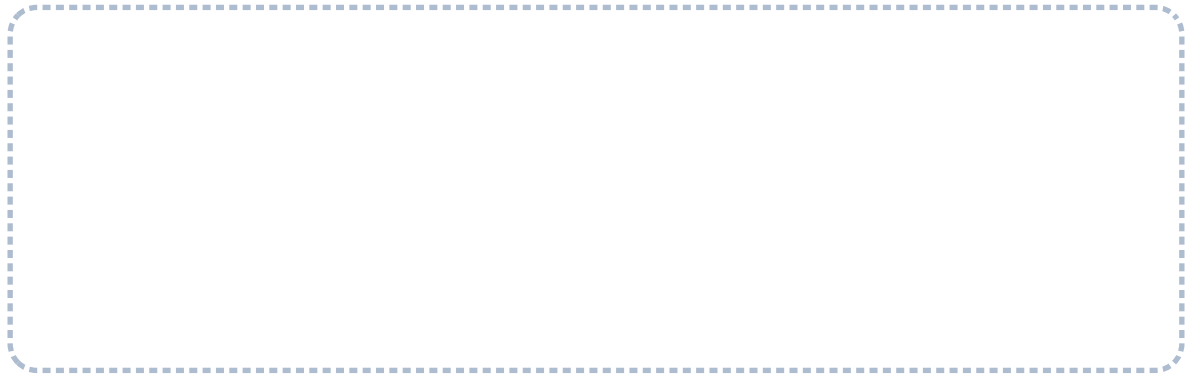
[3 marks]

Solve $x^2 \geq 64$

Q25

[4 marks]

Solve $x^2 + 3x - 18 \leq 0$



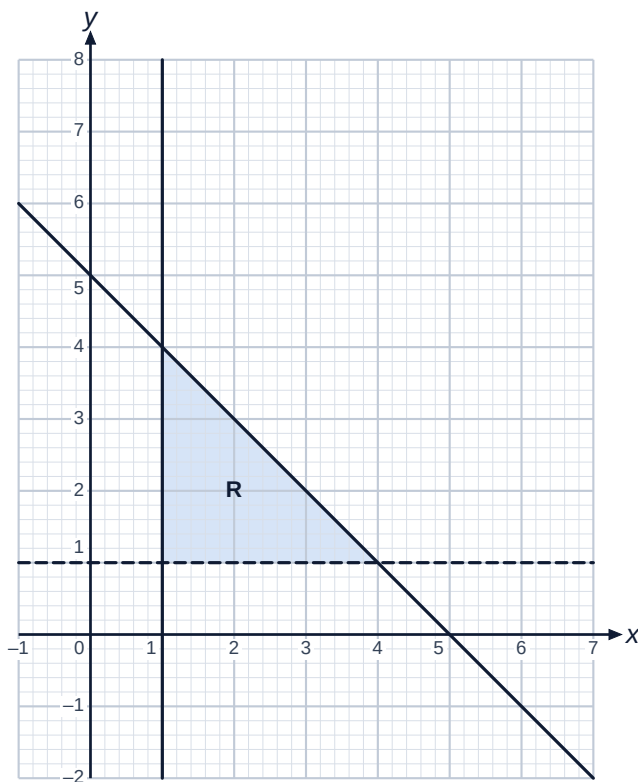
Q26

[3 marks]

The region R is shaded on the grid.

Solid lines are included in the region; dashed lines are not included.

Write down the three inequalities that define the region R.



Q27

[3 marks]

Solve $x^2 \geq 16$

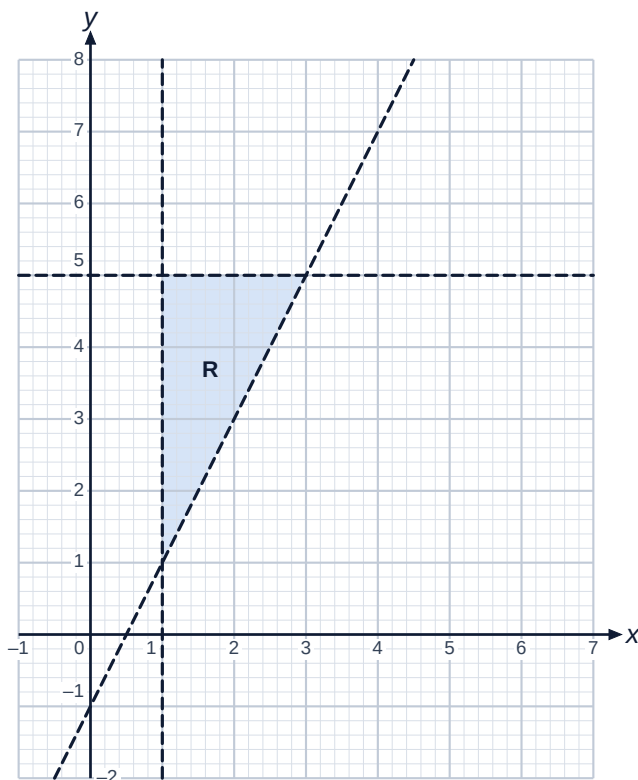
Q28

[3 marks]

The region R is shaded on the grid.

Solid lines are included in the region; dashed lines are not included.

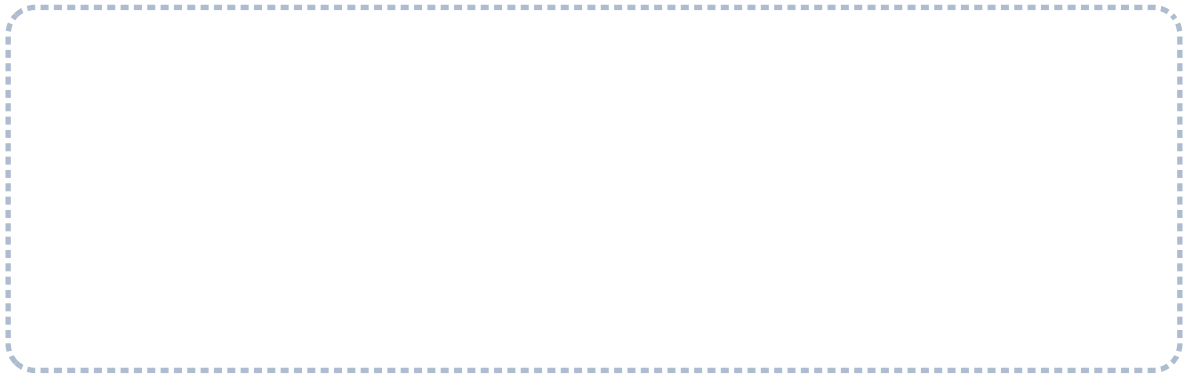
Write down the three inequalities that define the region R.



Q29

[3 marks]

Solve $x^2 \leq 49$



Q30

[3 marks]

The region R is shaded on the grid.
Solid lines are included in the region; dashed lines are not included.
Write down the three inequalities that define the region R.

