

Inequalities (H)

Intervention Booklet

Graphical Inequalities

Things to remember:

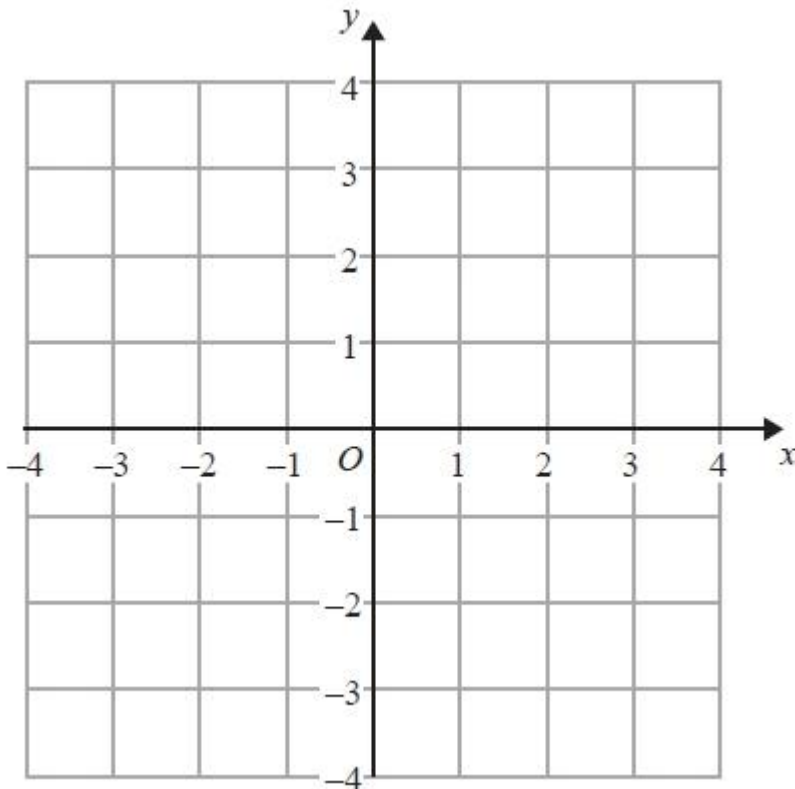
- Use a table of values if you need to help you draw the linear graphs.
- Use a solid line for \geq or \leq , and a dotted line for $>$ or $<$.
- Test a coordinate ((0, 0) is easiest) to work out which side of the line to shade.

Questions:

1. (a) Solve the inequality $5e + 3 > e + 12$

.....
(2)

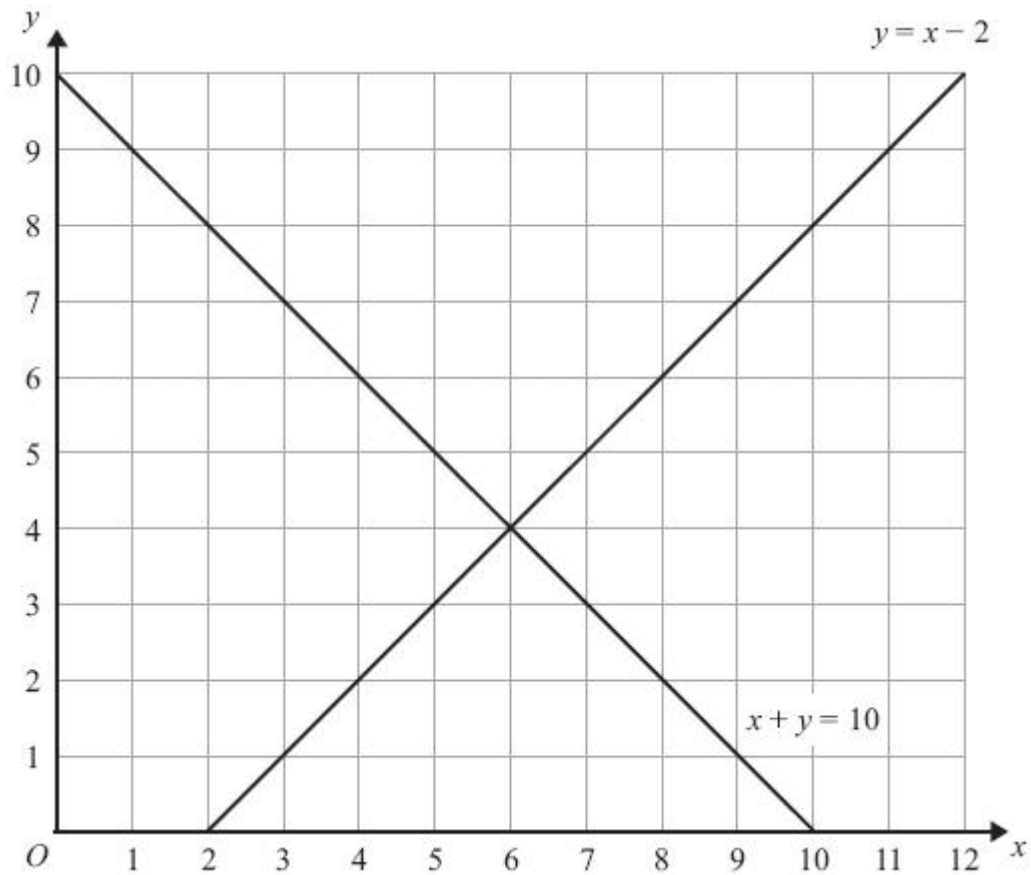
(b) On the grid, shade the region defined by the inequality $x + y > 1$



(2)

(Total for Question is 4 marks)

2. The lines $y = x - 2$ and $x + y = 10$ are drawn on the grid.



On the grid, mark with a cross (×) each of the points with integer coordinates that are in the region defined by

$$\begin{aligned} y &> x - 2 \\ x + y &< 10 \\ x &> 3 \end{aligned}$$

(Total for Question is 3 marks)

3. (a) Given that x and y are integers such that

$$3 < x < 7$$

$$4 < y < 9$$

and $x + y = 13$

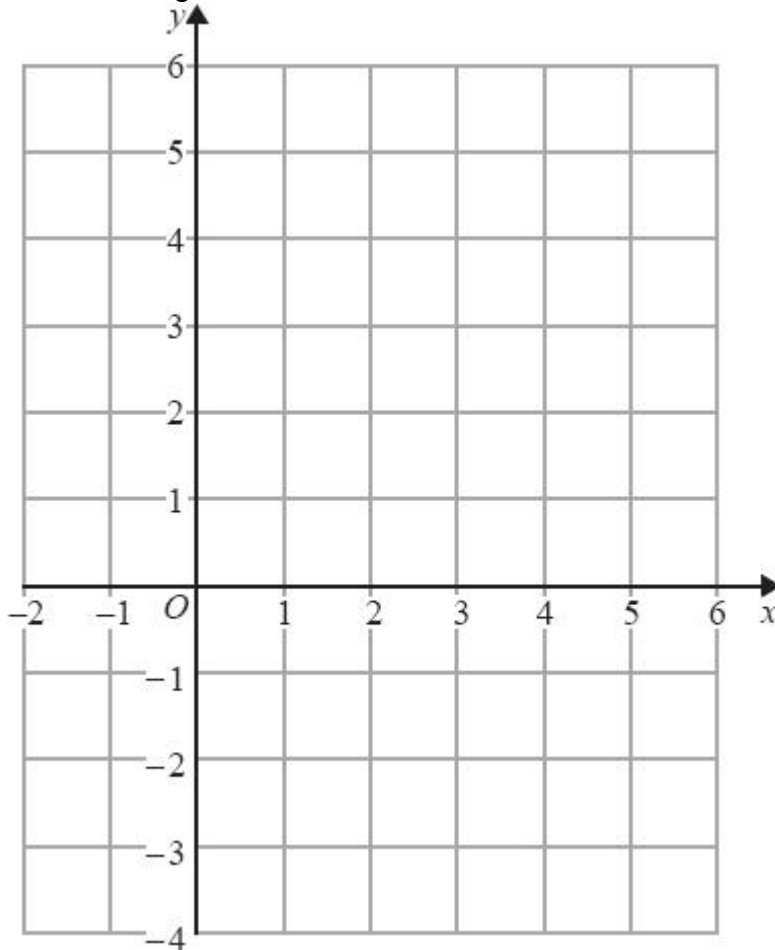
find all the possible values of x .

.....
(2)

- (b) On the grid below show, by shading, the region defined by the inequalities

$$y \geq -1 \quad y \leq 4 - x \quad y \leq 3x - 1$$

Mark this region with the letter R.



(4)

(Total for question = 6 marks)

Solving Quadratic Inequalities

Things to remember:

- Start by solving the quadratic to find the values of x , then sketch the graph to determine the inequality.

Questions:

1. Solve $x^2 > 3x + 4$

.....
(Total for question = 3 marks)

2. Solve the inequality $x^2 \geq 3(x + 6)$

.....
(Total for question = 4 marks)

3. Solve the inequality $x^2 + 5x > 6$

.....
(Total for question = 3 marks)

4. Solve the inequality $x^2 - 2x - 8 < 0$

.....
(Total for question = 3 marks)