Linear Inequalities

28 marks

1. n is an integer such that $-5 < 2n \leq 6$

(a) List all the possible values of n.

……..

(3)

(b) Solve the inequality

$$5 + x > 5x - 11$$

……

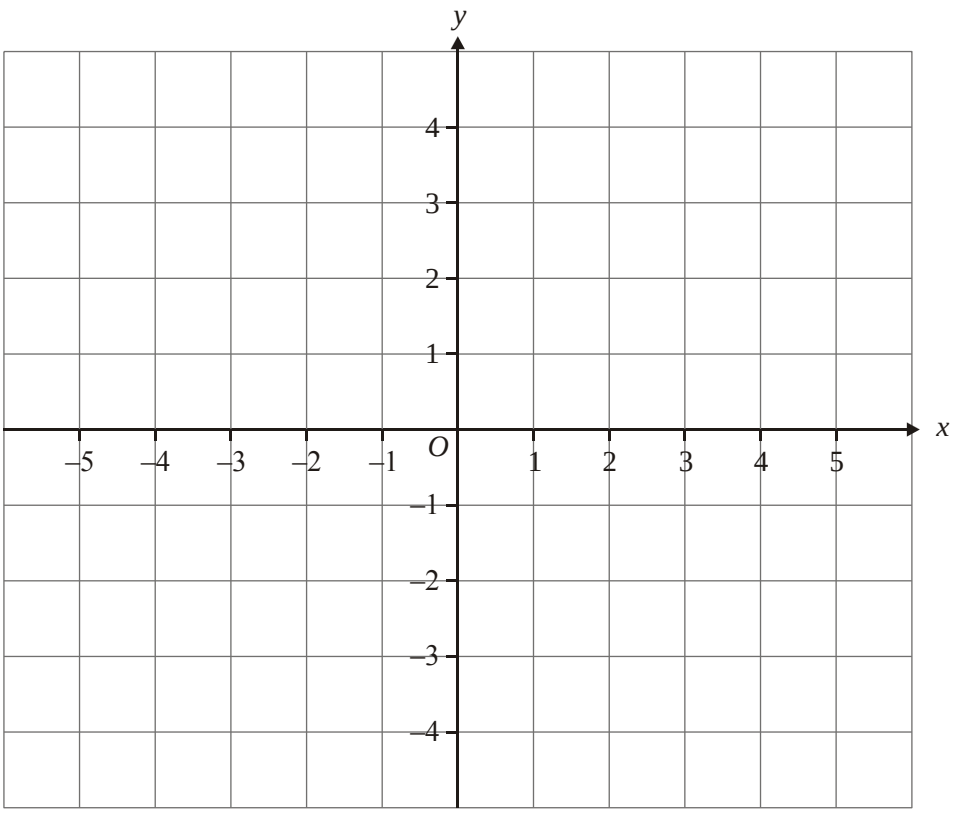
(2)

(Total 5 marks)

2. $-2 < x \leq 1$ $y > -2$ $y < x + 1$

x and y are integers.

On the grid, mark with a cross (✕), each of the six points which satisfies **all** these 3 inequalities.



(Total 3 marks)

3. (i) Solve the inequality

$$5x - 7 < 2x - 1$$

……

(ii) On the number line, represent the solution set to part (i).

(Total 3 marks)

4. (a) $4x + 3y < 12$

x and y are both integers.

Write down two possible pairs of values that satisfy this inequality.

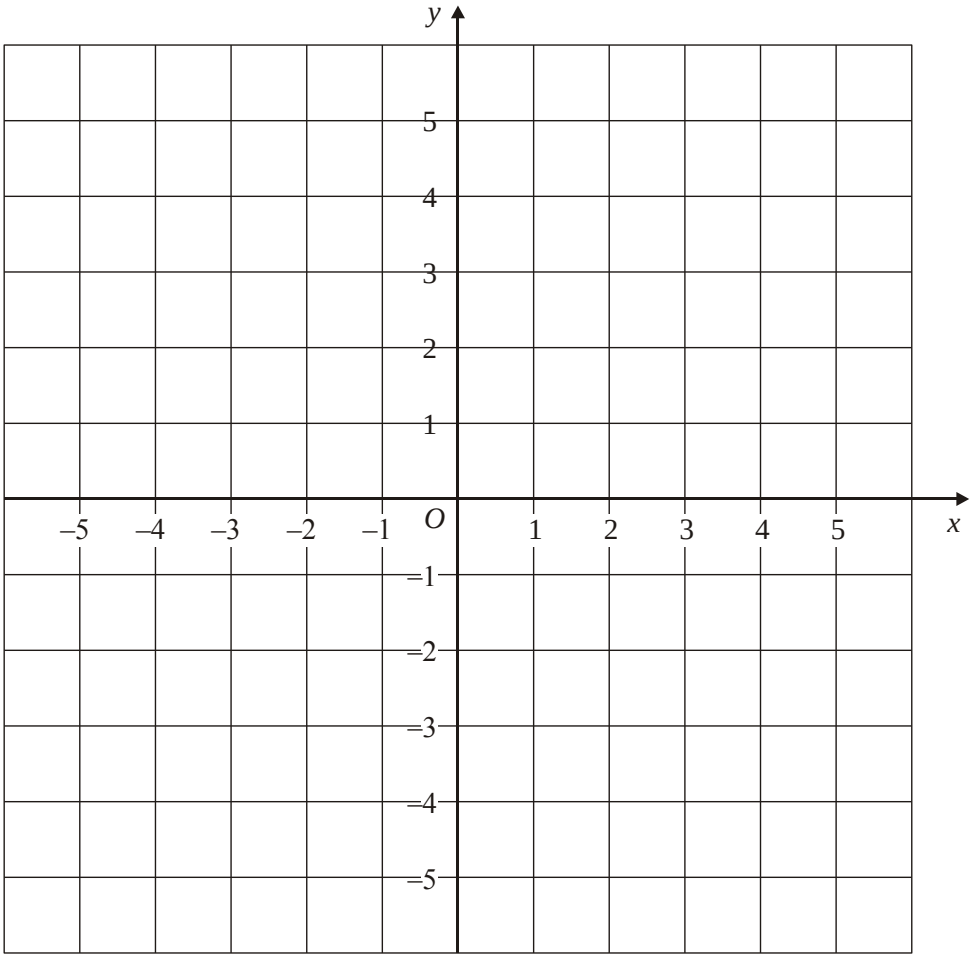
x = ..., y = ...

and x = ..., y = ...

(2)

(b) $4x + 3y < 12$, $y < 3x$, $y > 0$, $x > 0$ x and y are both integers.

On the grid, mark with a cross (×), each of the **three** points which satisfy **all** these four inequalities.

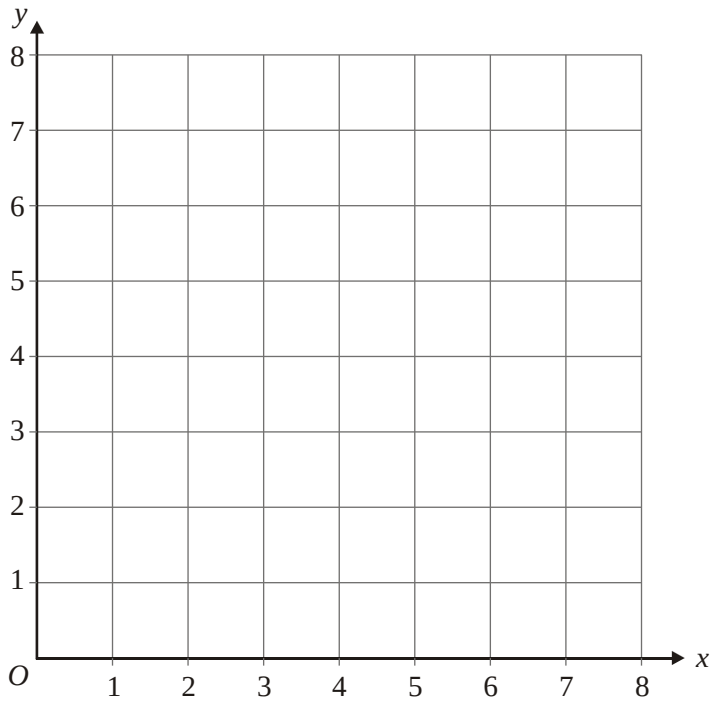


(3)

(Total 5 marks)

5. (a) On the grid below, draw straight lines and use shading to show the region **R** that satisfies the inequalities

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



(3)

The point P with coordinates (x, y) lies inside the region **R**.
x and y are **integers**.

(b) Write down the coordinates of **all** the points of **R** whose coordinates are both integers.

.....
.....

(2)
(Total 5 marks)

6. (a) List all the possible integer values of n such that

$-2 \leq n < 3$

.....

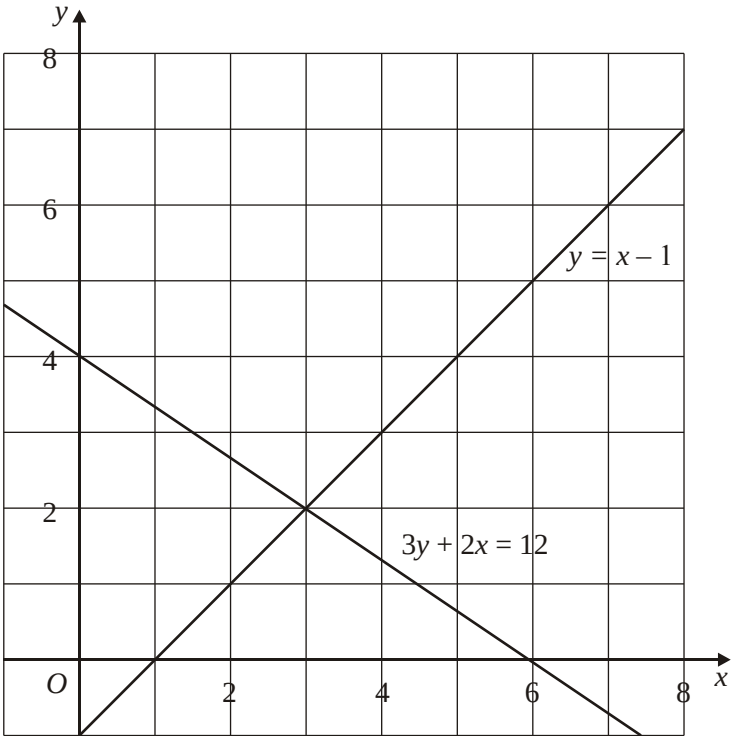
(2)

(b) Solve the inequality

$4p - 8 < 7 - p$

(2)
(Total 4 marks)

7. The graphs of the straight lines with equations $3y + 2x = 12$ and $y = x - 1$ have been drawn on the grid.



$3y + 2x > 12$ $y < x - 1$ $x < 6$

x and y are integers.

On the grid, mark with a cross (×), each of the **four** points which satisfies **all** 3 inequalities.

(Total 3 marks)