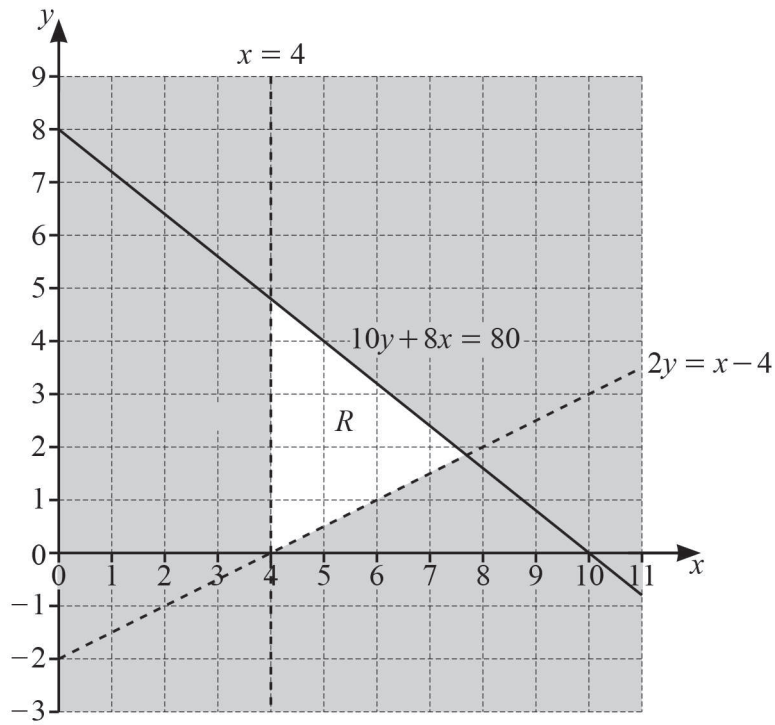


1



The region marked R is defined by three inequalities.

(a) Find these three inequalities.

.....

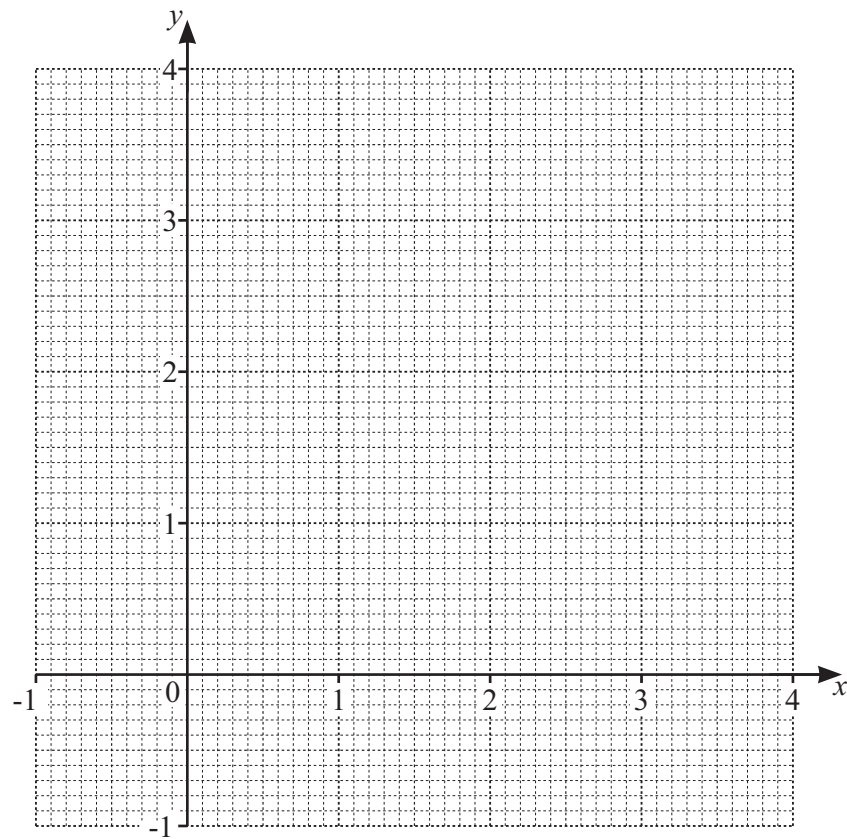
.....

..... [3]

(b) Write down the largest value of $3x + y$ in the region R for integers x and y .

..... [2]

[Total: 5]



The region R satisfies these three inequalities.

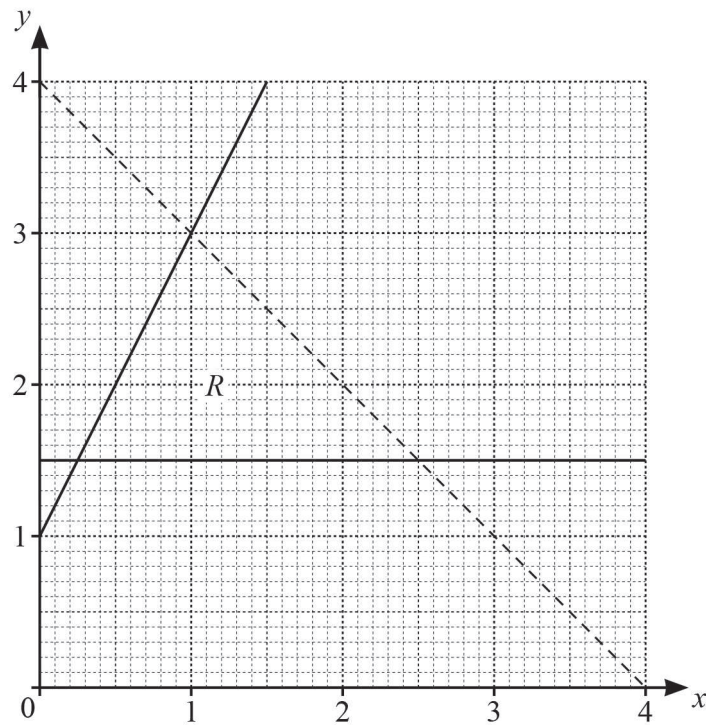
$$y > 1 \quad y < 2x + 2 \quad x + y \leq 3$$

By drawing three suitable lines, and shading unwanted regions, find and label the region R .

[5]

[Total: 5]

3



Write down the three inequalities that define the region R .

.....

.....

..... [4]

[Total: 4]

- 4 (a) By drawing suitable lines and shading unwanted regions, find the region, R , where

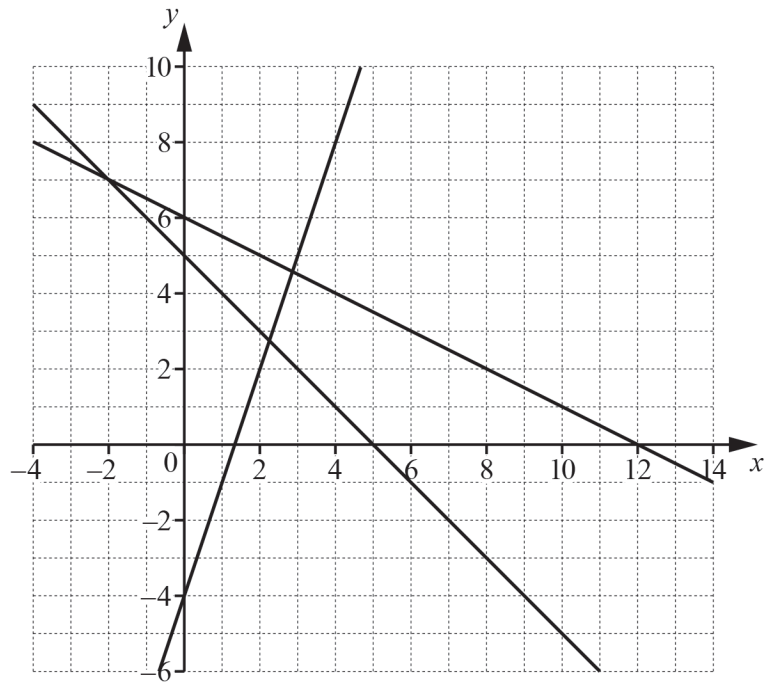
$$x \geq 2, \quad y \geq x \quad \text{and} \quad 2x + y \leq 8. \quad [5]$$

- (b) Find the largest value of $x + y$ in the region R .

..... [1]

[Total: 6]

5



$$y \leq -\frac{1}{2}x + 6 \quad y \geq 3x - 4 \quad x + y \geq 5$$

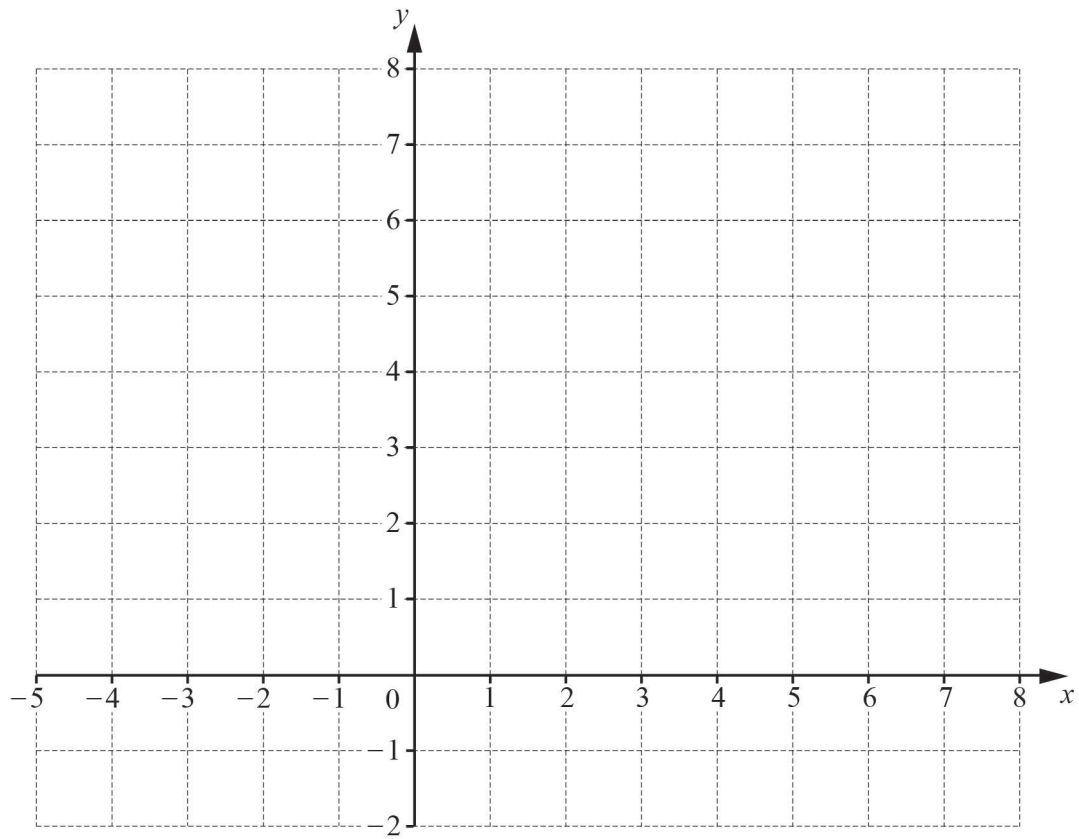
- (a) By shading the **unwanted** regions of the grid, find and label the region R that satisfies the three inequalities. [2]

- (b) Find the largest value of $x + y$ in the region R , where x and y are integers.

..... [1]

[Total: 3]

6

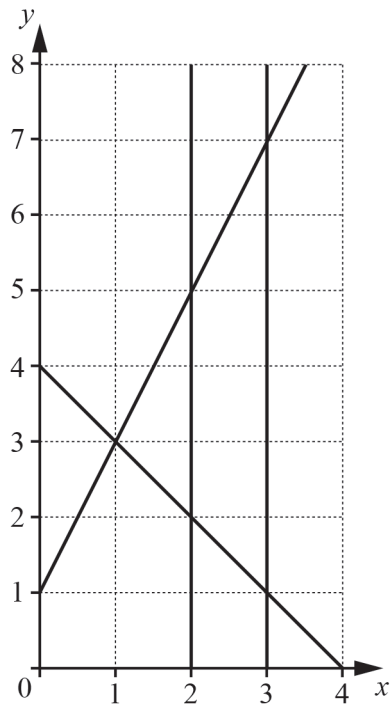


By shading the **unwanted** regions of the grid, draw and label the region R which satisfies the following three inequalities.

$$y \leq 2 \quad x < 3 \quad y \leq x + 4$$

[5]

[Total: 5]



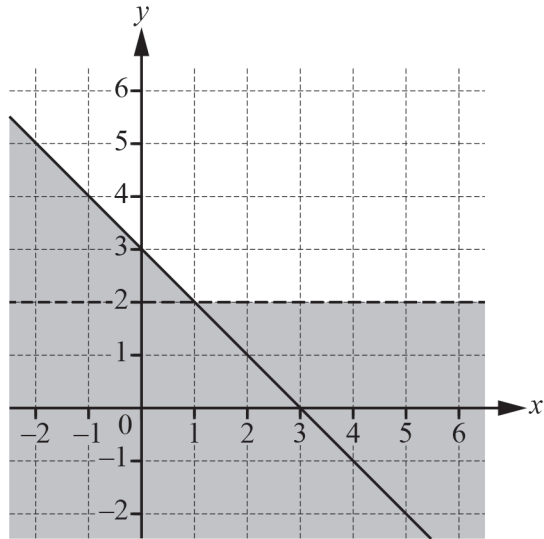
By shading the **unwanted** regions of the grid, find and label the region R that satisfies the following four inequalities.

$$x \leq 3 \quad x \geq 2 \quad y \leq 2x + 1 \quad y \geq 4 - x$$

[3]

[Total: 3]

8



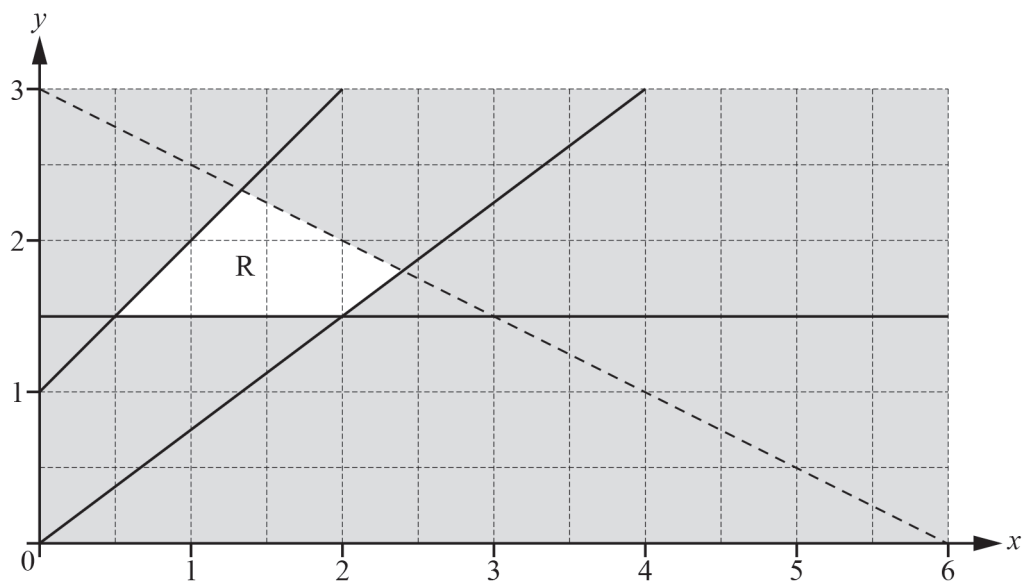
Find the two inequalities that define the region on the grid that is **not** shaded.

.....

..... [3]

[Total: 3]

9



There are four inequalities that define the region R.

One of these is $y \leq x + 1$.

Find the other three inequalities.

.....

.....

..... [4]

[Total: 4]

10 (a) Find the three inequalities that define the region R.

.....

.....

..... [4]

(b) Find the point (x, y) , with integer co-ordinates, inside the region R such that $3x + 5y = 35$.

(..... ,) [2]

[Total: 6]

11 Klaus buys x silver balloons and y gold balloons for a party.

He buys

- more gold balloons than silver balloons
- at least 15 silver balloons
- less than 50 gold balloons
- a total of no more than 70 balloons.

(a) Write down four inequalities, in terms of x and/or y , to show this information.

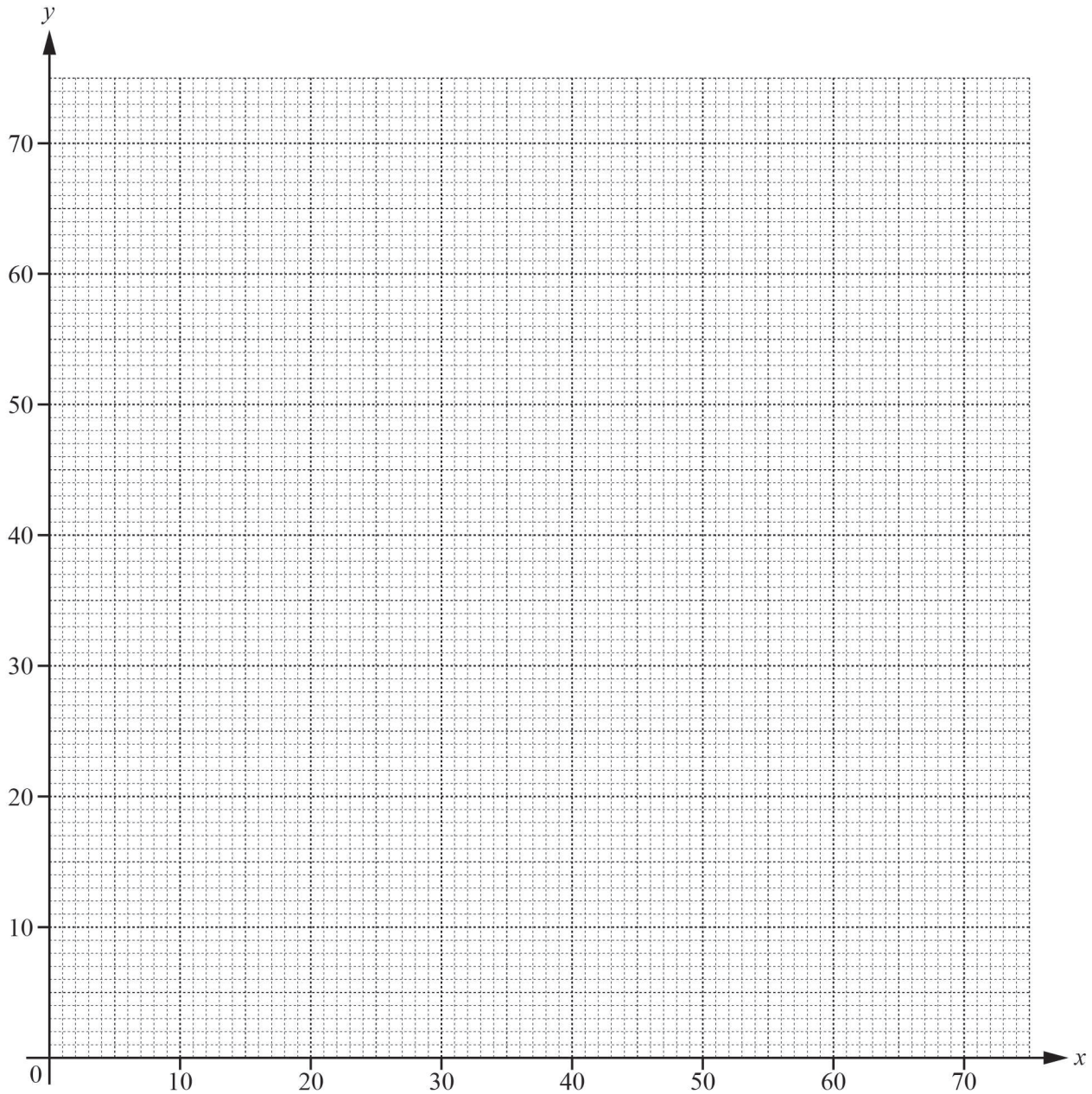
.....

.....

.....

..... [4]

- (b) On the grid, show the information from **part (a)** by drawing four straight lines and shading the unwanted regions.



[5]

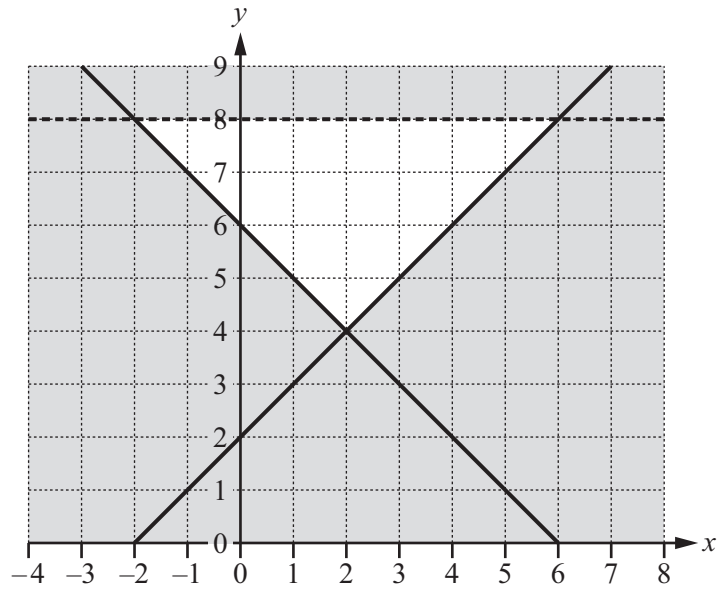
- (c) Silver balloons cost \$2 and gold balloons cost \$3.

Calculate the most that Klaus could spend.

\$ [2]

[Total: 11]

12



Write down the 3 inequalities which define the unshaded region.

Answer

.....

..... [4]

[Total: 4]