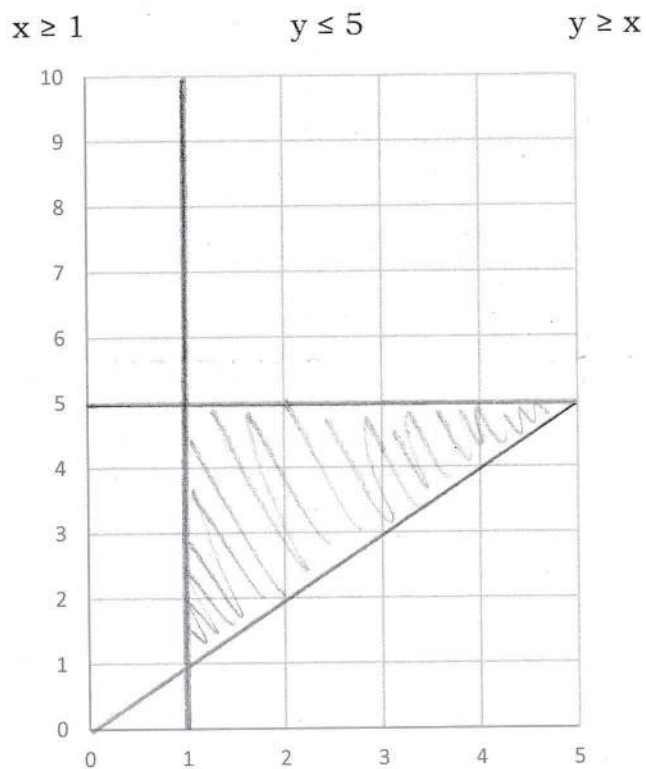


INEQUALITIES ON A GRAPH - PRACTICE QUESTIONS

1.

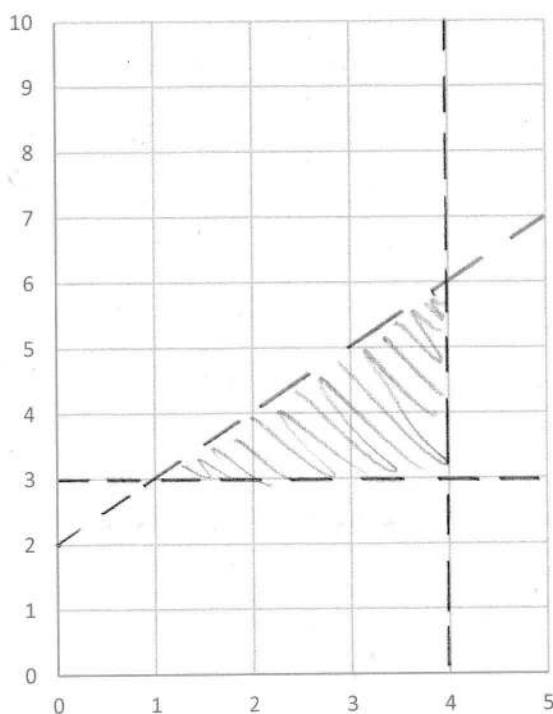
On the axis below, clearly indicate the region which satisfies all three inequalities:



2.

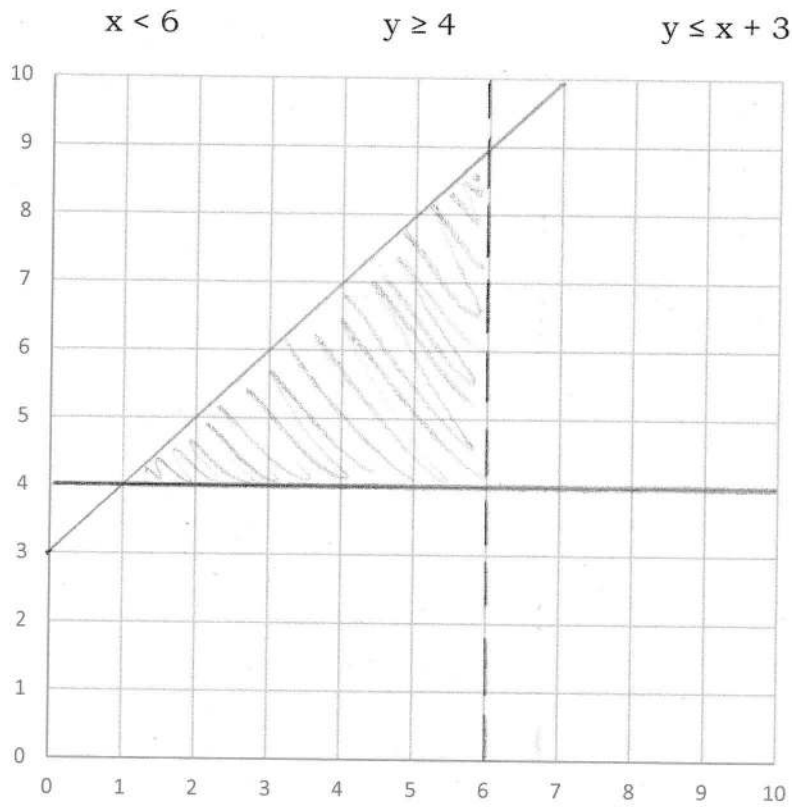
On the axis below, clearly indicate the region which satisfies all three inequalities:

$x < 4$ $y > 3$ $y < x + 2$



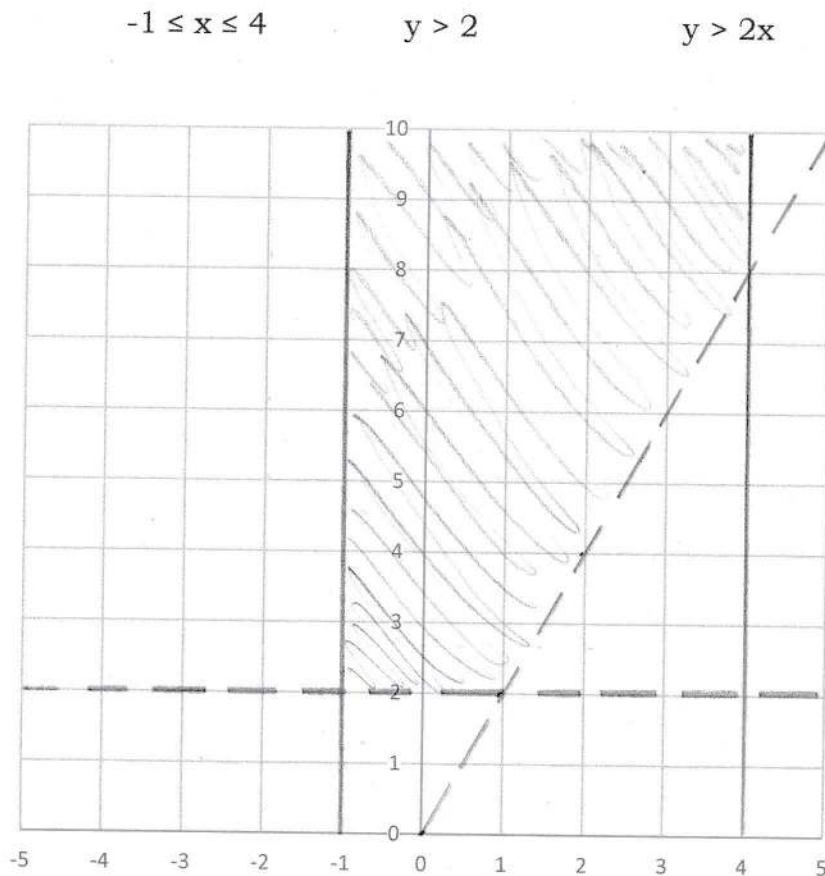
3.

On the axis below, clearly indicate the region which satisfies all three inequalities:



4.

On the axis below, clearly indicate the region which satisfies all three inequalities:



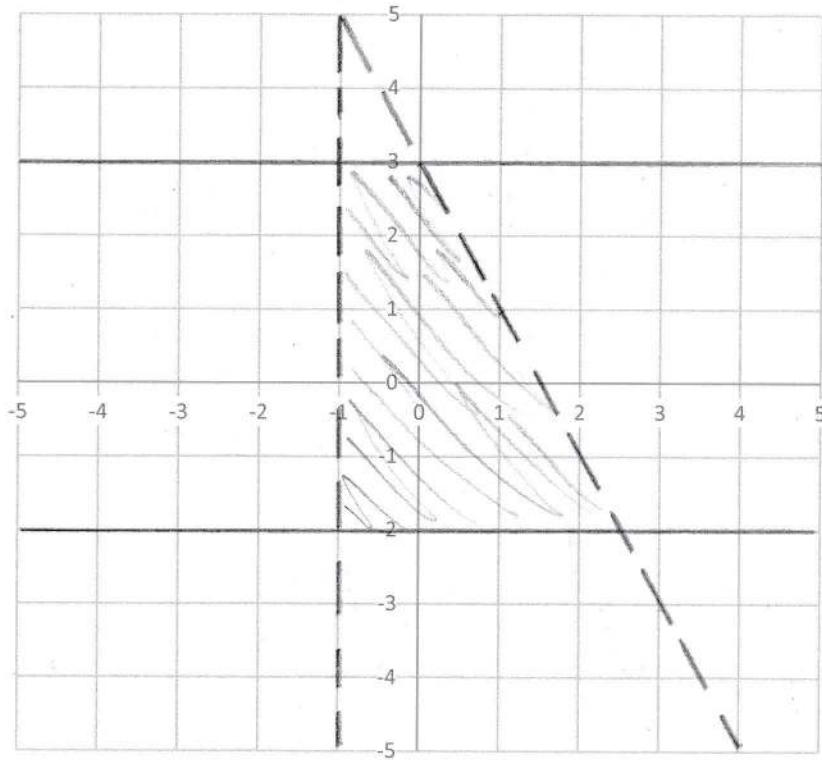
5.

On the axis below, clearly indicate the region which satisfies all three inequalities:

$$x > -1$$

$$-2 \leq y \leq 3$$

$$y < 3 - 2x$$



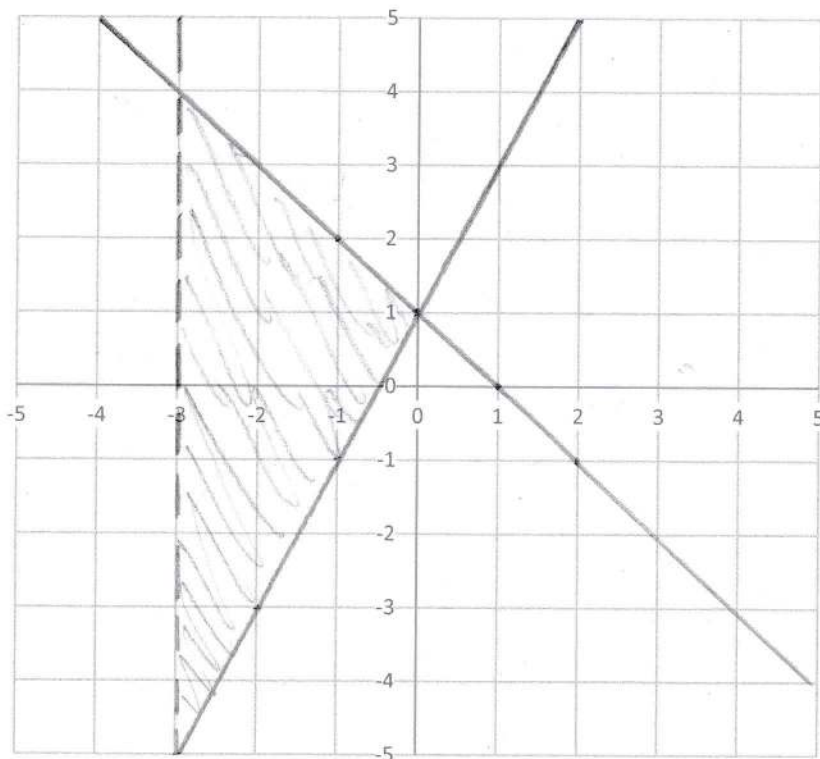
6.

On the axis below, clearly indicate the region which satisfies all three inequalities:

$$x > -3$$

$$y \leq 1 - x$$

$$y \geq 2x + 1$$



7.

On the axis below, clearly indicate the region which satisfies all three inequalities:

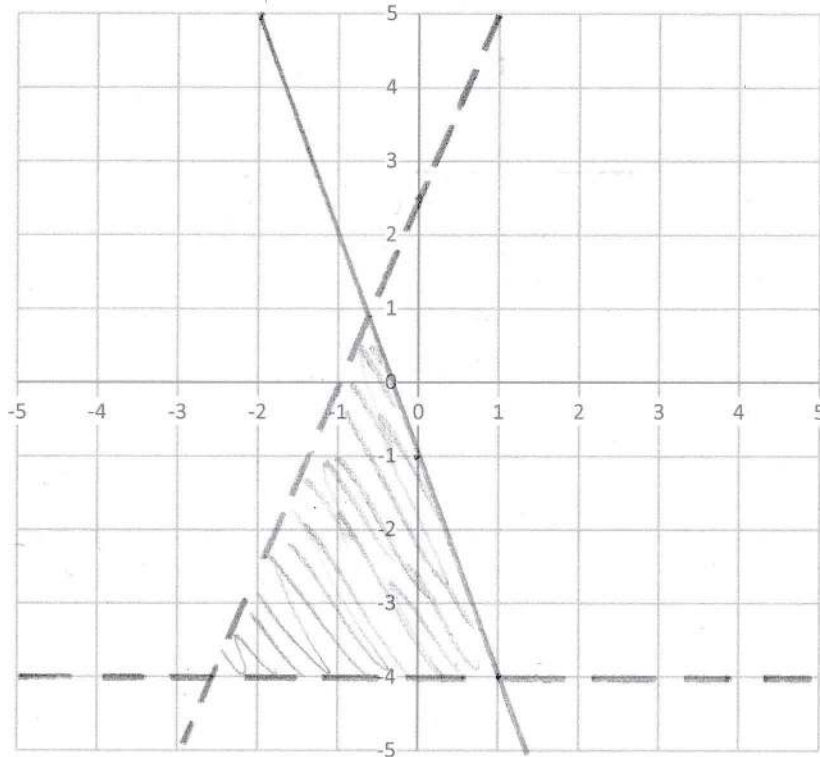
$$y > -4$$

$$y < 2.5x + 2.5$$

$$2y < 5x + 5$$

$$y \leq -1 - 3x$$

$$3x + y \leq -1$$



8.

On the axis below, clearly indicate the region which satisfies all three inequalities:

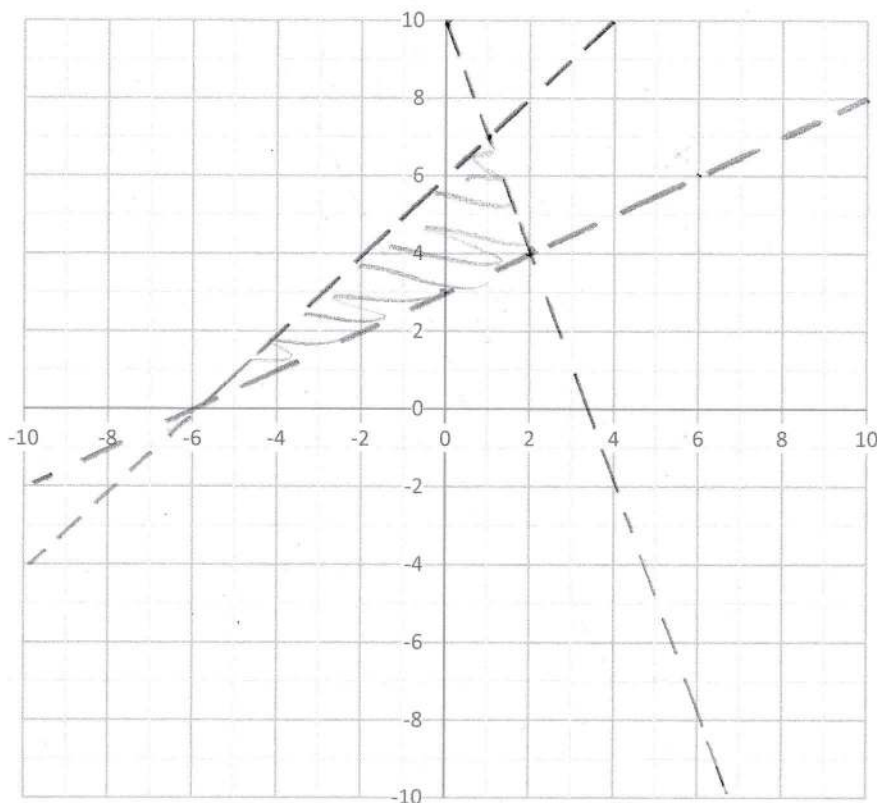
$$2y - x - 6 > 0$$

$$y < 10 - 3x$$

$$y + 3x < 10$$

$$y < x + 6$$

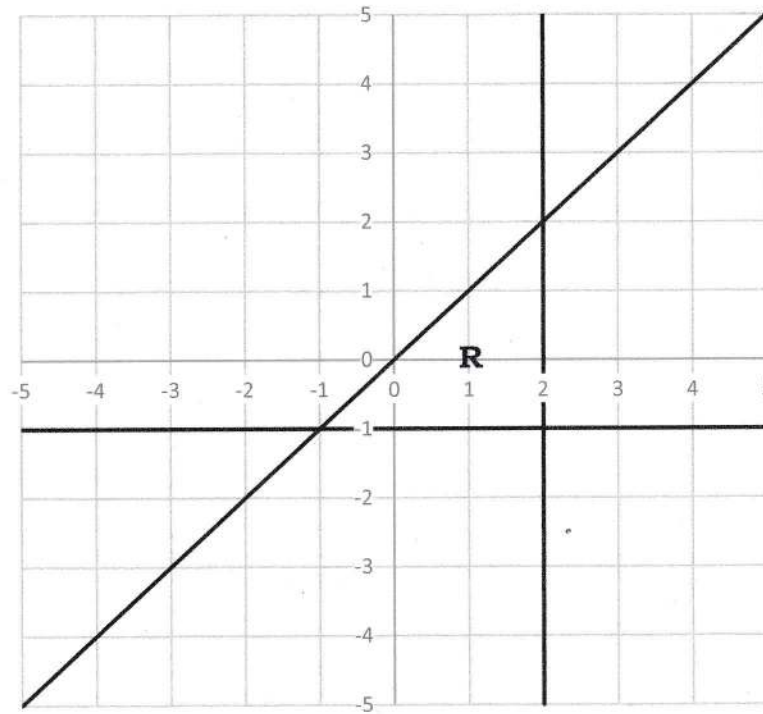
$$y > \frac{x}{2} + 3$$



9.

State the three inequalities that the region R is bounded by.

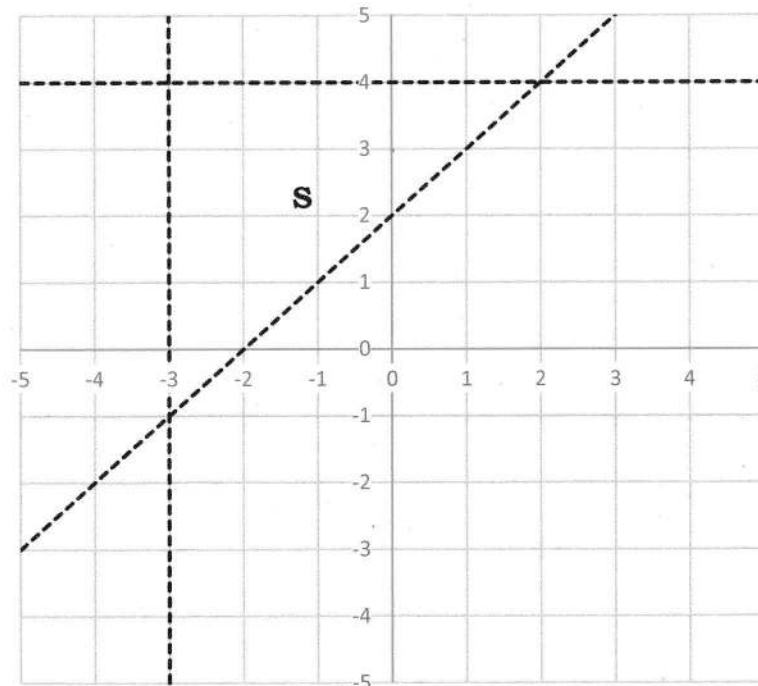
$$x \leq 2$$
$$y \geq -1$$
$$y \leq x$$



10.

State the three inequalities that the region S is bounded by.

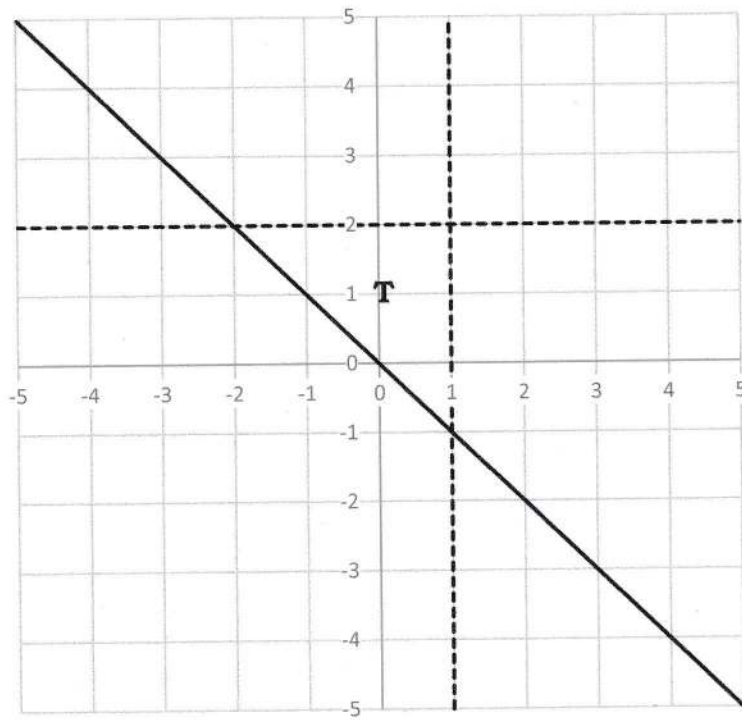
$$x > -3$$
$$y < 4$$
$$y > x + 2$$



11.

State the three inequalities that the region T is bounded by.

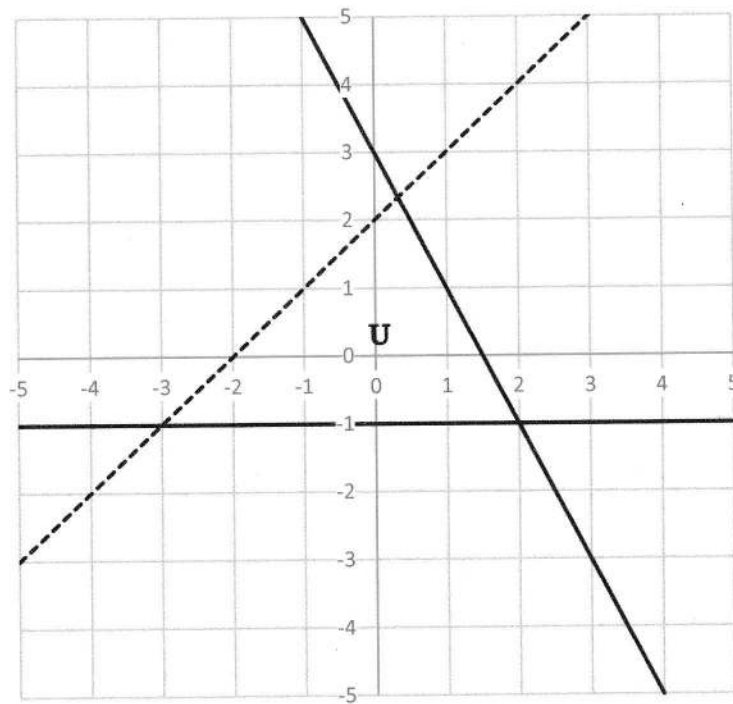
$$y < 2$$
$$x < 1$$
$$y > -x$$



12.

State the three inequalities that the region U is bounded by.

$$x \geq -1$$
$$y < x + 2$$
$$y \leq 3 - 2x$$



13.

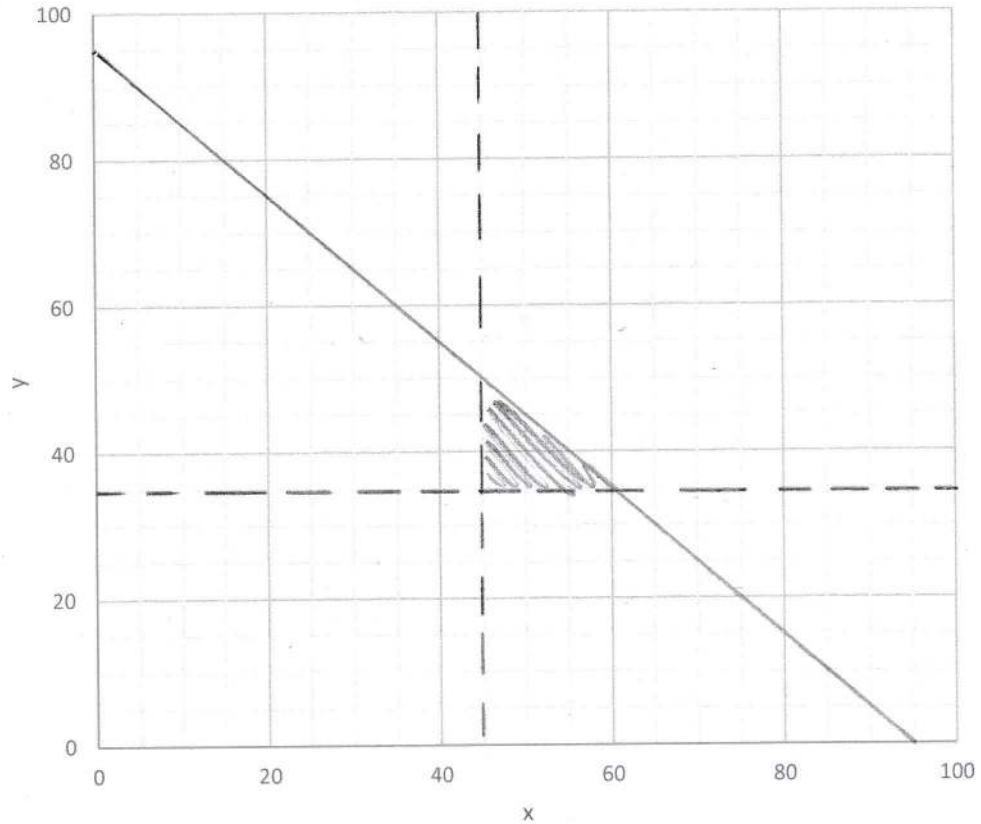
Adam is thinking of two numbers – x and y .

The sum of the two numbers is no larger than 95.

x is greater than 45.

y is greater than 35.

On the axis below, clearly indicate the region which satisfies all conditions.



$$x + y \leq 95$$

$$y \leq 95 - x$$

$$x > 45$$

$$y > 35$$

~~10~~
~~10~~
~~10~~

14.

Brendan runs a fast food stall.

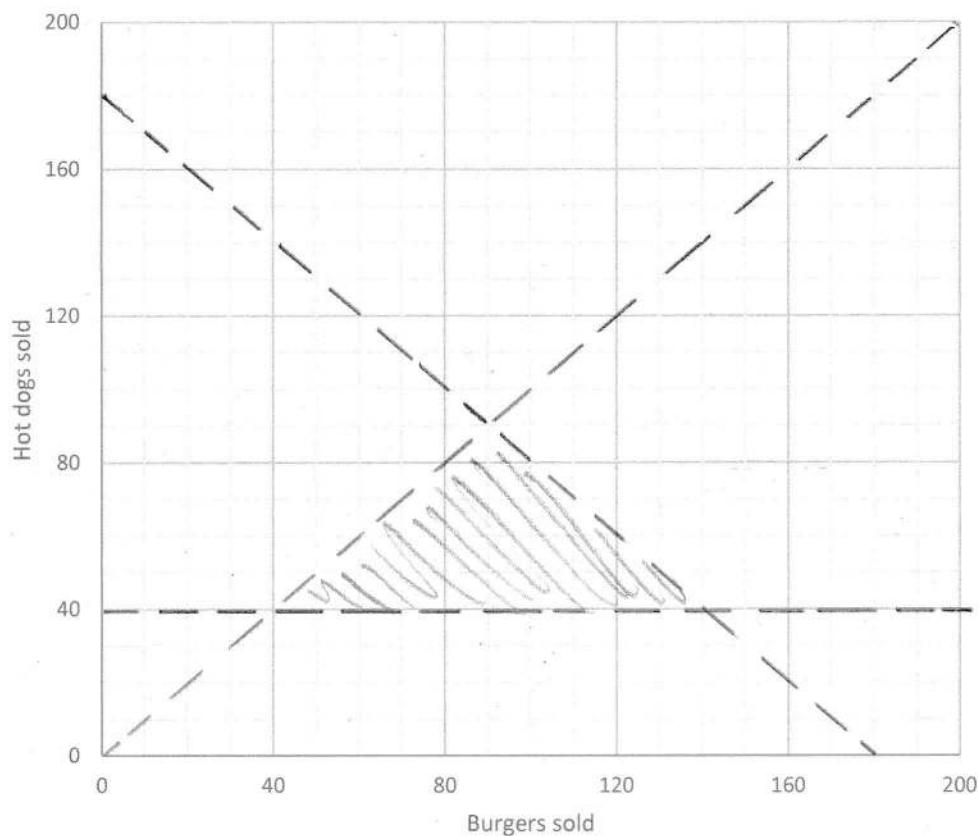
He sells hot dogs and burgers.

On Saturday, he sold fewer than 180 items in total.

He sold more burgers than hot dogs.

He sold more than 40 hot dogs.

On the axis below, clearly indicate the region which satisfies all conditions.



$x = \text{burgers}$
 $y = \text{hot dogs}$

$$x + y < 180$$

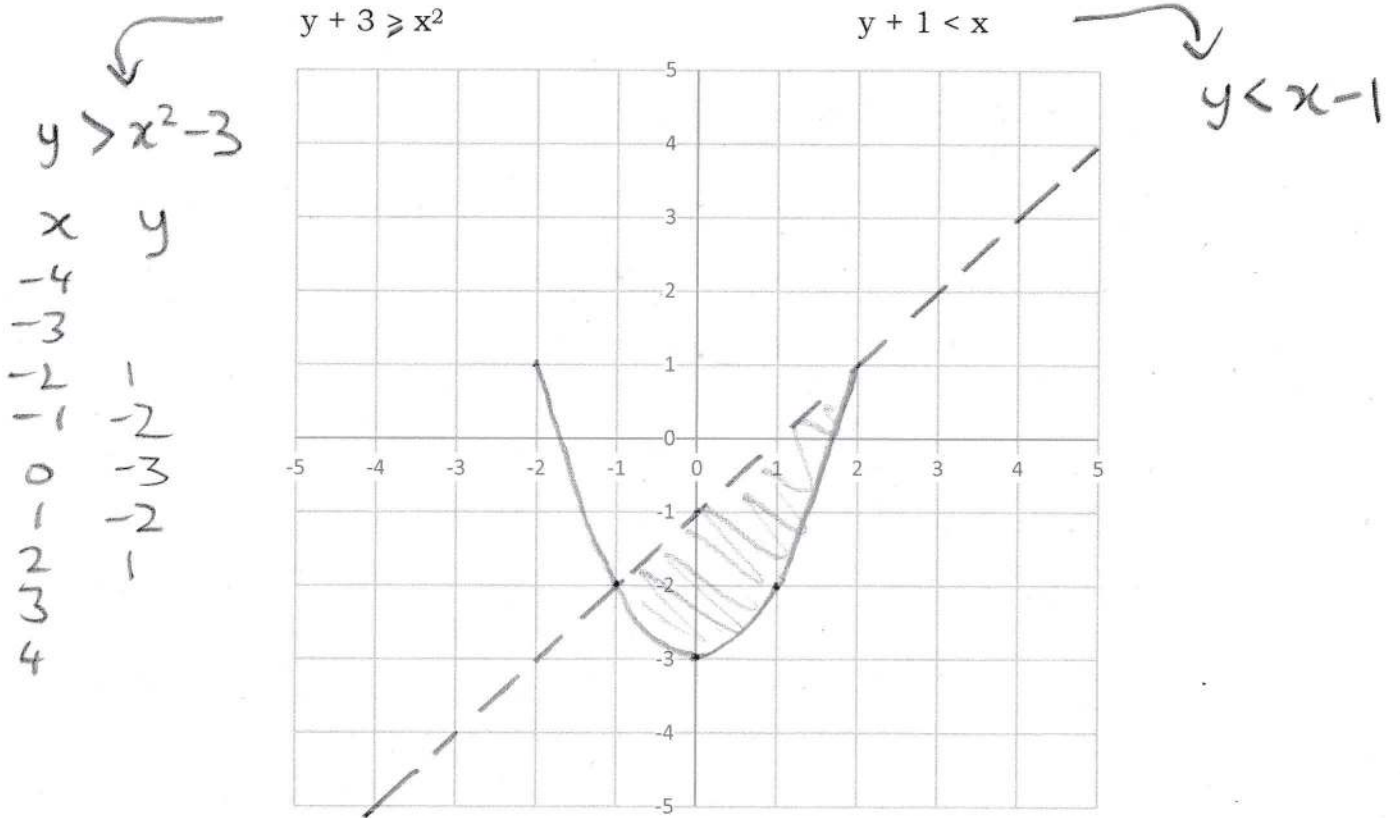
$$y < 180 - x$$

$$x > y$$

$$y > 40$$

15.

(a) On the axis below, clearly indicate the region which satisfies both inequalities:



(b) Using your graph, write down all integer solutions to the inequalities:

$y + 3 \geq x^2$

$y + 1 < x$

$(0, -2)$

$(0, -3)$

$(1, -2)$

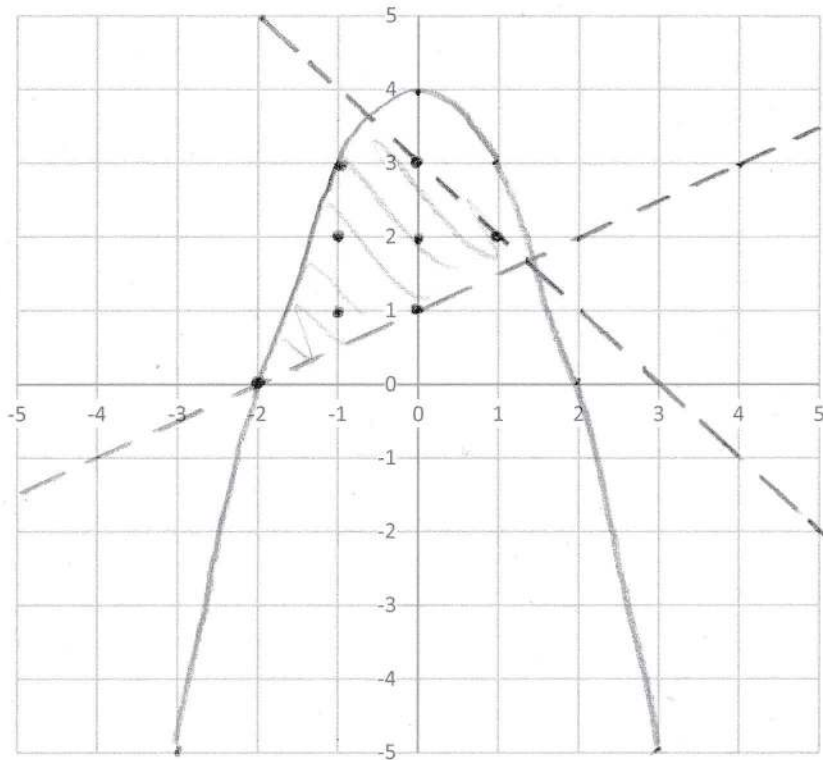
$(1, -1)$

16.

(a) On the axis below, clearly indicate the region which satisfies all three inequalities:

$$y \leq 4 - x^2 \qquad y > \frac{x}{2} + 1 \qquad 2y > x + 2 \qquad y < 3 - x$$

x y
 -4
 -3 -5
 -2 0
 -1 3
 0 4
 1 3
 2 0
 3 -3
 4



(b) Using your graph, write down all integer solutions to the inequalities:

$$y \leq 4 - x^2 \qquad 2y > x + 2 \qquad y < 3 - x$$

$(-1, 3), (-1, 2), (-1, 1), (0, 2)$

(c) Hence, write down all integer solutions to the inequalities:

$$y \leq 4 - x^2 \qquad 2y \geq x + 2 \qquad y \leq 3 - x$$

$(-1, 3), (-1, 2), (-1, 1), (0, 2), (-2, 0), (0, 1), (0, 3), (1, 2)$