

In this section we will explain how to solve the following type of problems:

(i) $10 \cdot x + 20 \cdot y \leq 1000$

but also restrictions of being positive both the number of chairs (x) and the number of tables (y):

(ii) $x \geq 0$

(iii) $y \geq 0$

Each of these restrictions has a straight line associated with the plane XY, that separates the plane in two regions: the validity region (region where the restriction is satisfied) and the area in where it is not satisfied. Next for these straight lines and areas of validity, there are three restrictions:

(i) The restriction is:

$$10 \cdot x + 20 \cdot y \leq 1000$$

and therefore the associated straight line is:

$$f(x) = -\frac{1}{2} \cdot x + 50$$

If we also try the point ($x = 0, y = 0$) in the inequation:

$$10 \cdot 0 + 20 \cdot 0 \leq 1000$$

therefore the validity region will be the one that contains the point $(0, 0)$:

