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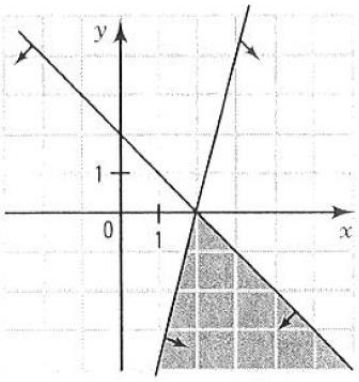
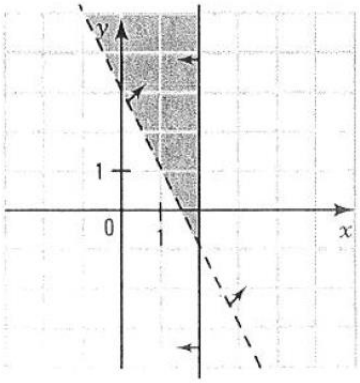
1. Determine graphically the solution set of the following systems.

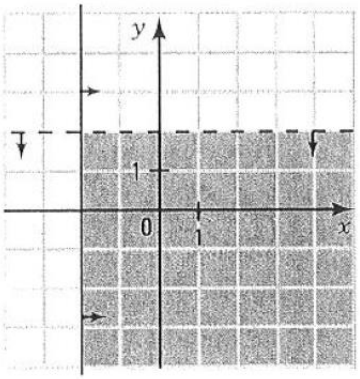
a) $\begin{cases} -4x + y \leq -8 \\ x + y \leq 2 \end{cases}$



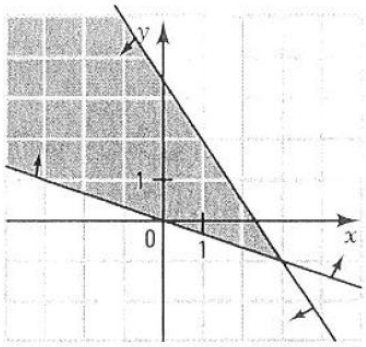
b) $\begin{cases} y > -2x + 3 \\ x \leq 2 \end{cases}$



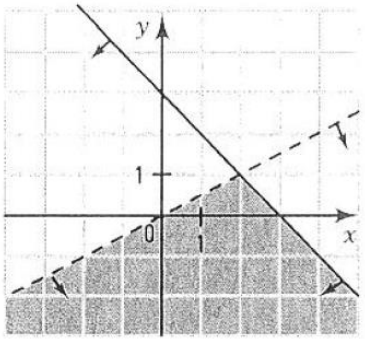
c) $\begin{cases} x \geq -2 \\ y < 2 \end{cases}$



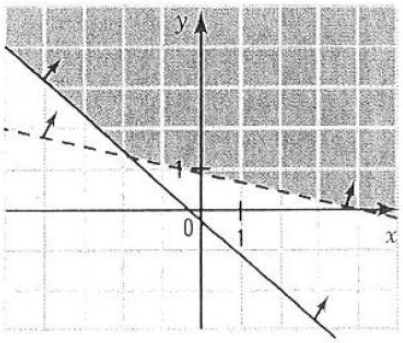
d) $\begin{cases} x + 3y \geqslant 0 \\ 3x + 2y \leqslant 7 \end{cases}$



e) $\begin{cases} x + y \leqslant 3 \\ x > 2y \end{cases}$



f) $\begin{cases} 5x + 6y \leqslant -1 \\ x + 5y > 4 \end{cases}$



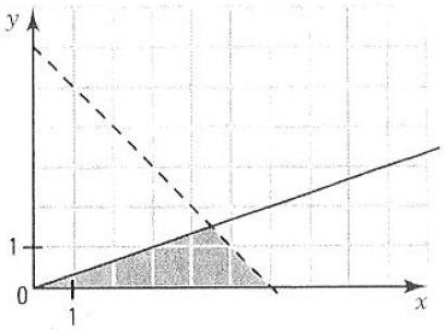
2. In each of the following situations

1. identify the variables involved;
2. write a system that translates the constraints of the situation;
3. represent this system in the Cartesian plane and determine the solution set.

a) A rectangle has a height equal to at least three times its width. Its perimeter is less than 12 cm.

x: length, y: width.

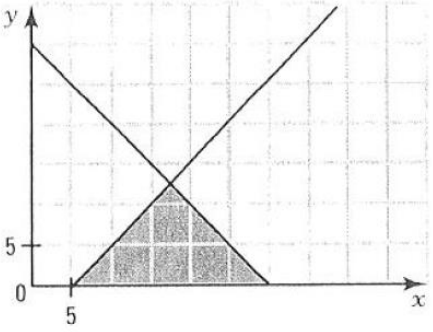
$$\begin{cases} x \geqslant 3y \\ 2x + 2y < 12 \end{cases}$$



b) In an aquarium, there are at least five more fishes as there are plants. The total number of species is at most equal to 30.

x: number of fishes, y: number of plants.

$$\begin{cases} x \geqslant y + 5 \\ x + y \leqslant 30 \end{cases}$$



c) In a 720 m² parking lot, each car occupies an area of 6 m² and each bus an area of 18 m². There are less than 50 vehicles.

x: number of cars, y: number of buses

$$\begin{cases} 6x + 18y \leqslant 720 \\ x + y < 50 \end{cases}$$