

Exercice 4

$$\text{contrainte: } 1000G + 100 \times 0 + 10 \times 0 + D = 300 \times 0 + 30L + 2D$$

$$\text{domaines: } D(G) = [1..9]$$

$$D(O) = [1..9]$$

$$D(L) = [0..9]$$

$$D(D) = [0..9]$$

borne consistance pour G:

$$G = \frac{190 \times 0 + 30L + 2D}{1000}$$

$$\text{donc } G \leq \frac{190 \times 9 + 30 \times 9 + 2 \times 9}{1000} = \frac{1948}{1000} < 2$$

$$\text{donc } \boxed{G = 1}$$

$$\text{nouvelle contrainte: } 190 \times 0 + 30L + 2D = 1000$$

borne consistance pour O:

$$O = \frac{1000 - 30 \times L - 2 \times D}{190}$$

$$\text{donc } O \leq \frac{1000 - 30 \times 0 - 2 \times 0}{190} = \frac{1000}{190} < 6$$

$$\text{et } O \geq \frac{1000 - 30 \times 9 - 2 \times 9}{190} = \frac{712}{190} > 3$$

$$\text{donc } D(O) = [4..5]$$

$$\text{pour L: } L = \frac{1000 - 190 \times O - 2D}{30}$$

$$\text{donc } L \leq \frac{1000 - 190 \times 4}{30} = \frac{240}{30} \leq 8$$

$$\text{et } L \geq \frac{1000 - 190 \times 5 - 2 \times 9}{30} = \frac{32}{30} > 1$$

$$\left. \begin{array}{l} \text{donc } L \leq 8 \\ \text{et } L \geq 1 \end{array} \right\} D(L) = [2..8]$$

$$\text{pour O: } O \leq \frac{1000 - 30 \times 2 - 2 \times 0}{190} = \frac{940}{190} < 5$$

$$\text{donc } D(O) = [4..4] \quad \boxed{O = 4}$$

$$\text{pour nouvelle contrainte } 30L + 2D = 240$$

$$L \geq \frac{240 - 2 \times 9}{30} = \frac{222}{30} > 7$$

$$\text{donc } \boxed{L = 8}$$

$$\text{nouvelle contrainte } 2D = 0$$

$$\text{donc } \boxed{D = 0}$$