

Ex n° 6 $\rightarrow$ ~~u~~ u ?

<u>Lge</u>	u =0	u =1	u =2	u =3	u =4
L ₁	ϵ	1	01	1	0011
L ₂	ϵ	0, 1	00, 01, 11	000, 011, 111, 111	0111, 0000, 1111, ...
L ₃	1	0	01	011	0111

Ex n° 7

$$L_1 \cdot L_2 = \{01^n 0^m 1, n, m \in \mathbb{N}\}$$

$$L_1 \cap L_2 = \{01\}$$

$$L_2 = \{01^n 01^m / n, m \in \mathbb{N}\}$$

Ex n° 8

$$- L_1 = \{u \in \{0, 1, 2\}^* / |u| = 2k, k \in \mathbb{N}\}$$

$$- L_2 = \{u \in \{0, 1, 2\}^* / |u|_0 = |u|_1 = |u|_2\}$$

$$- \forall u, v \in L_1 \xrightarrow{?} u \cdot v \in L_1$$

$$u, v \in L_1 \Rightarrow |u| = 2k \text{ et } |v| = 2l, (k, l \in \mathbb{N})$$

$$|u \cdot v| = |u| + |v| = 2(\underbrace{k+l}_m) = 2m \Rightarrow$$

la Concaténation est un Loi interne (internal Law)

$$|\epsilon| = 0 = 2 \cdot 0 \Rightarrow \epsilon \in L_1$$

$$|u \cdot \epsilon| = |u| + |\epsilon| = |u| = 2k \Rightarrow \epsilon \text{ is a neutral element.}$$

(Students achieve The Second part)