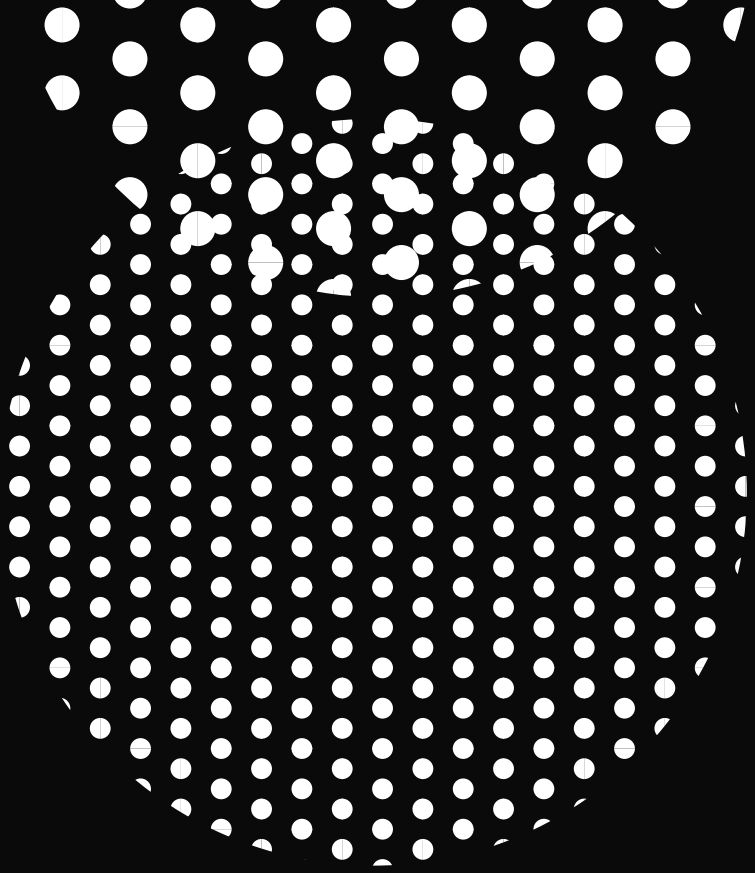


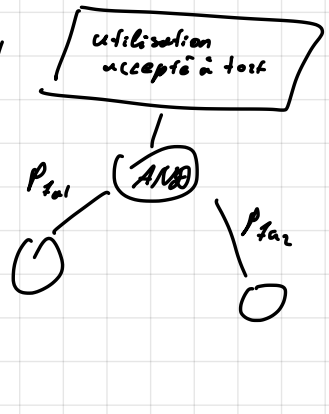
Exercice 1

1. (a) $P_{fa_1} P_{fa_2}$

$P_{f_{21}} + P_{f_{22}} - P_{f_{21}} P_{f_{22}}$

(b) $P_{fa_1} + P_{fa_2} - P_{fa_1} P_{fa_2}$

$P_{f_{11}} P_{f_{12}}$



2. (a) 0,03

0,152

(c) 0,37

0,08

3. 1ère

Exercice 2

1) 1. 26^8

2. $\frac{26!}{(26-8)!}$

3. $52^5 10^3$

4. $52^7 \cdot 15^2 C_9^2$

5. $62^6 + 62^7 + 62^8 + 62^9 + 62^{10}$

6. $52^8 + 52^7 \cdot 15 C_8^1 + 52^6 \cdot 15^2 C_8^2$

2) $\sum_{n=1}^{k} 26^n = \frac{26(26^k - 1)}{26 - 1}$

$\sum_{n=1}^{k} 52^n$

3) $52^6 \cdot 0,1 \approx 1477000$ secondes

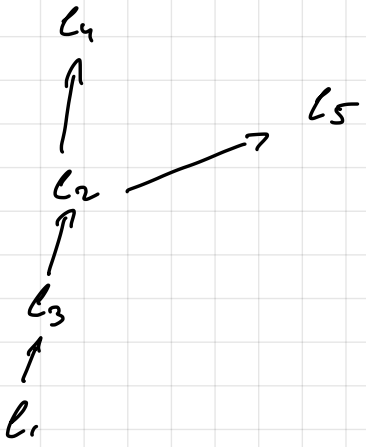
≈ 62 ans

$\approx \frac{52^6 \cdot 0,1}{3,156 \cdot 10^7}$

4) 26^n

Exercice 3

1.



2.

(a) l_1

(b) l_5

(c) l_5

3. (TS, { OPINT, NUCL, RxD }) → max

(NC, 23) → min

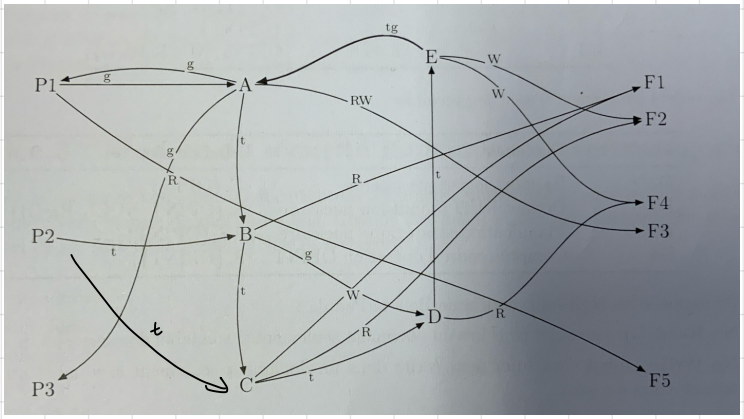
donc c'est un treillis fini

$4 \cdot 2^3$ → total

Partie B

	D_1	D_2	D_3	D_4
U1	R, —	—, W	—, —	R, —
U2	R, —	—, —	R, W	R, —
U3	R, —	—, W	—, —	—, —

Exercice 4



1. R: $P_2 \xrightarrow{t} B$ et $B \xrightarrow{R} F_1$ $\Rightarrow$ $P_2 \xrightarrow{R} F_1$

W: $P_2 \xrightarrow{t} B$ et $B \xrightarrow{t} C$ et $C \xrightarrow{W} F_1$