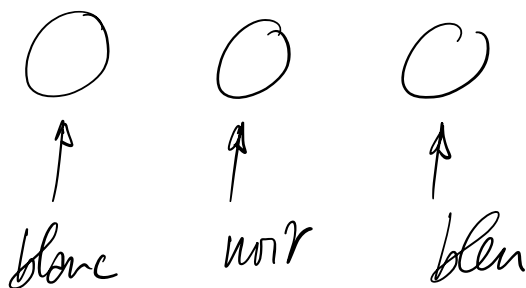


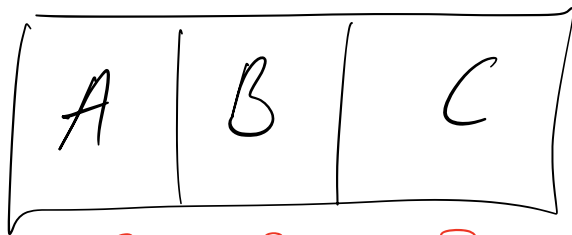
Combinatoire

COMPTER DES TRUCS

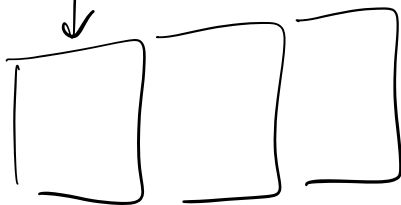
3 boules l'indor :



BLA NOIR BLE

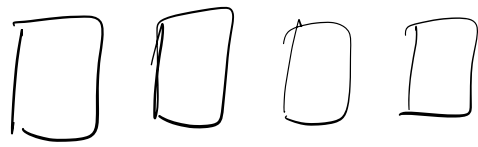


$$27 = 3 \cdot 3 \cdot 3$$



$$3 \cdot 2 \cdot 1 = 6$$

Avec répétition



$$4 \cdot 3 \cdot 2 \cdot 1 = 24$$

↑
4 faktorielle

$$4!$$

$$5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$$

$$6! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$$

$$10! \approx 3 \cdot 10^6$$

$$100! =$$

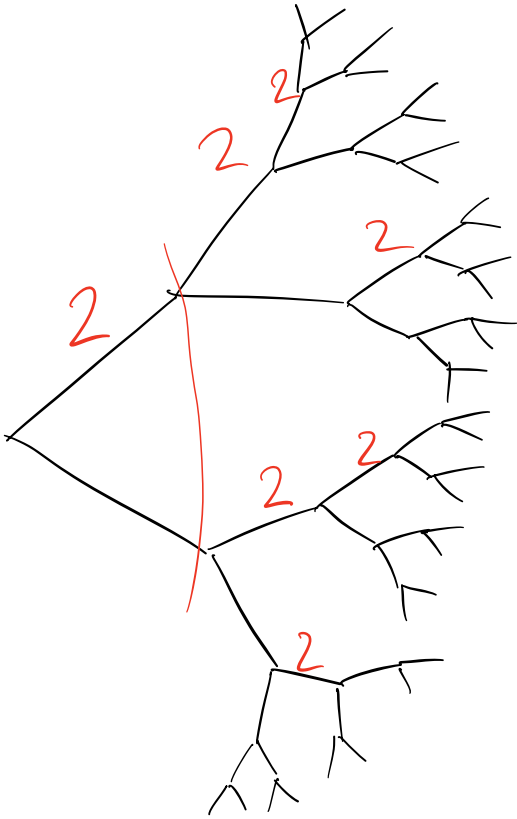
Permutationen

PFFFFP



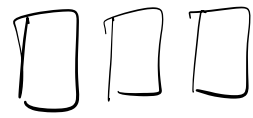
$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2^5$$

$$= 32$$



32 branches

A A A B B B C



3.1.1

D R N
□ □ □

$$25 \cdot 24 \cdot 23 = 13800$$

3.1.2

A E I O U Y 6 voyelles

Sans répétition

□ □ □

$$6 \cdot 5 \cdot 4 = 120$$

$$20 \cdot 19 \cdot 18$$

$$26 \cdot 25 \cdot 24$$

20 consonnes
Avec répétitions

□ □ □

$$6 \cdot 6 \cdot 6$$

$$20 \cdot 20 \cdot 20$$

$$26 \cdot 26 \cdot 26$$

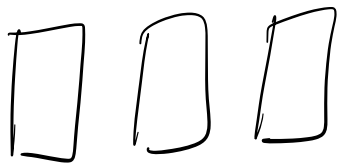
$$216$$

$$8000$$

voyelles

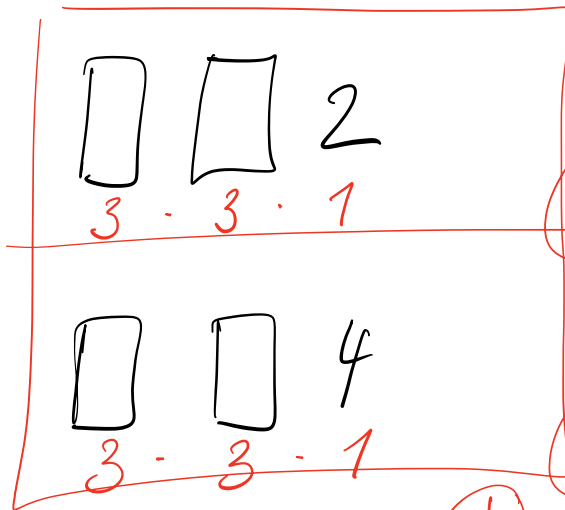
consonnes

toutes les lettres



$$3 \cdot 3 \cdot 3 = 27 \text{ au total}$$

pairs

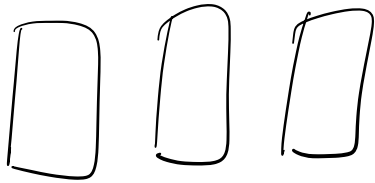


1^{ère} catégorie

9
2^{ème} catégorie

(+)

18



$$3 \cdot 3 \cdot 3 = 27$$

Au moins 1 fois le chiffre 1

EXACT. 1 FOIS 1

EXACT. 2 FOIS 1

~~EXACT. 3 FOIS 1~~

124 / 142 / 412 / ...

112 / 114

Impair 111

EXACT. 0 FOR 1

$\square \square \square$

$$2 \cdot 2 \cdot 2 = 8$$