

$$X_1 + X_2 + X_3 + X_4 + X_5 + X_6 = 4$$

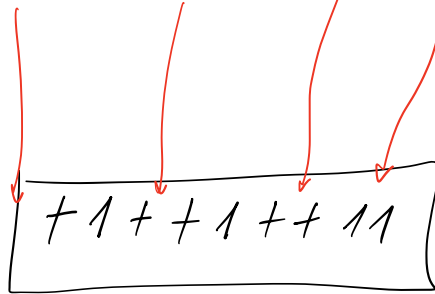
$$X_i \in \mathbb{N} = \{0; 1; 2; 3; \dots\}$$

$$0 + 1 + 0 + 1 + 0 + 2 = 4 \quad \checkmark$$

$$X_1 = 0 \quad X_2 = 1 \quad X_3 = 0 \quad X_4 = 1 \quad X_5 = 0 \quad X_6 = 2$$

Choisir 4 parmi 6 sans ordre avec répétitions

$$0 + 1 + 0 + 1 + 0 + 2$$



$$1111++++$$

$$\frac{9!}{5! 4!} = C_4^9 = \frac{9!}{(9-4)! 4!}$$

$$\overline{C_4^6} = C_4^9 = C_4^{4+6-1}$$

4U5S

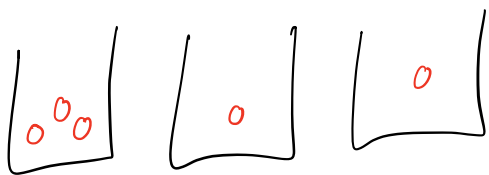
UVSSUVSSS

$$\frac{9!}{5! 4!}$$

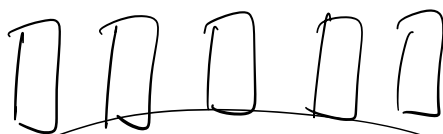
Choix de k parmi n

~~ordre~~
repetitions

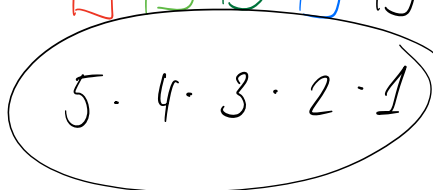
$$\bar{C}_k^n = C_k^{n+k-1}$$



3.6.6



A large circle contains the expression $6^5 \cdot 5!$.



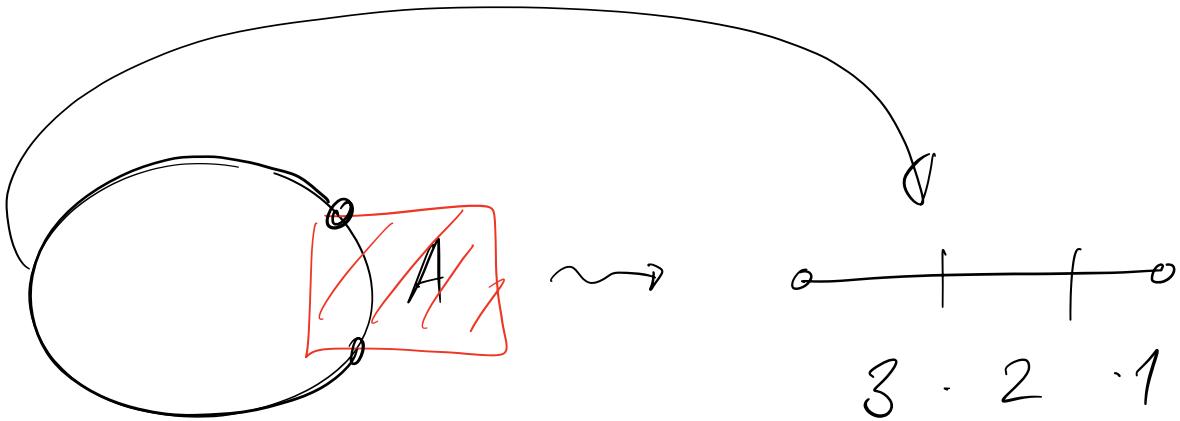
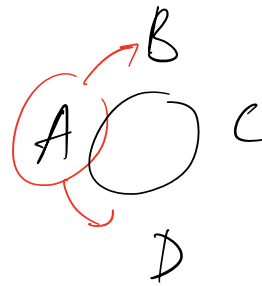
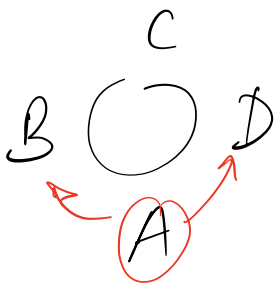
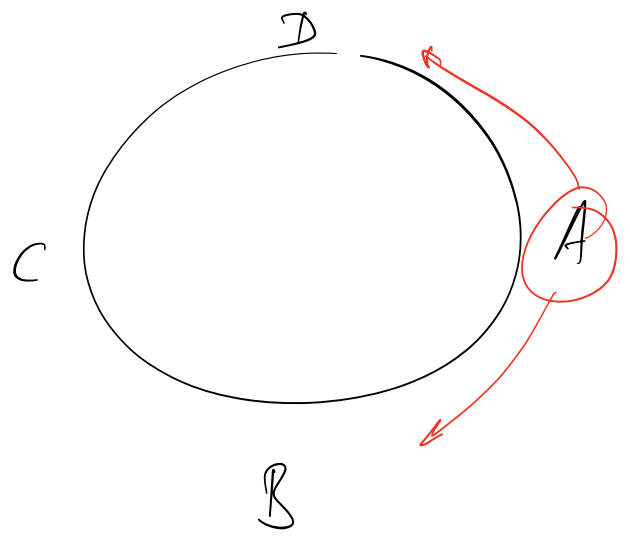
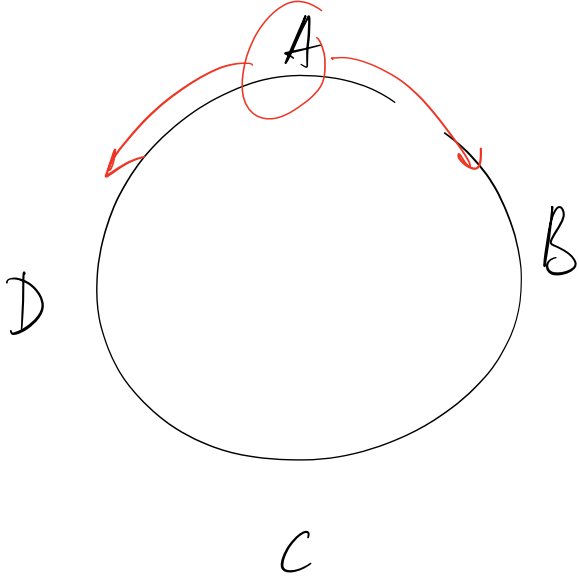
3.6.8

5 personnes

8 étages



$$8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 = 8^5$$



4 personnes autour d'une table \bigcirc : $3!$

BTVA
A
A

□□□□

3A

2A

1A

0A

MISSISSIPPI

MISP
ISP
IS
IS

MIIII SSSSPP
1 2 3 4 1 2 3 4 1 2

$$\frac{M!}{4! 4! 2!}$$