

Statistiques: Série 7

Corrigé

Exercice 1.

- a) $U = \{PPP; PPF; PFP; FPP; PFF; FPF; FFP; FFF\}$.
 b) $A = \{PPP; PPF; PFP; PFF\}$.
 c) $B = \{PPP; PPF; FPP; FPF\}$.
 d) ${}^cA = \{FPP; FPF; FFP; FFF\}$.
 e) $A \cap B = \{PPP; PPF\}$.
 f) $C = \{FFP; FPF; PFF; FFF\}$.

Exercice 2.

Il y a $2^3 = 8$ cas possibles.

- a) $p = \frac{3}{8}$.
 b) $p = \frac{1}{8}$.
 c) $p = \frac{7}{8}$.

Exercice 3.

Il y a $4! = 24$ cas possibles.

$$P(A) = \frac{1}{24}$$

$$P(B) = \frac{1 \cdot 3 \cdot 2 \cdot 1}{24} = \frac{6}{24} = \frac{1}{4}$$

$$P(C) = \frac{2 \cdot 1 \cdot 1 \cdot 1}{24} = \frac{2}{24} = \frac{1}{12}$$

Exercice 4.

- a) Il y a $12 \cdot 12 = 144$ cas possibles.

$$P(A) = \frac{1}{144}$$

$$P(B) = \frac{6 \cdot 6}{144} = \frac{36}{144} = \frac{1}{4}$$

$$P(C) = \frac{9 \cdot 9}{144} = \frac{81}{144} = \frac{9}{16}$$

- b) Il y a $12 \cdot 11 = 132$ cas possibles.

$$P(A) = \frac{1}{132}$$

$$P(B) = \frac{6 \cdot 5}{132} = \frac{30}{132} = \frac{5}{22}$$

$$P(C) = \frac{9 \cdot 8}{132} = \frac{72}{132} = \frac{6}{11}.$$

Exercice 5. Il y a $10 \cdot 9 \cdot 8 \cdot 7 = 5040$ cas possibles.

$$P(A) = \frac{1}{5040}.$$

$$P(B) = \frac{1 \cdot 1 \cdot 1 \cdot 6}{5040} = \frac{6}{5040} = \frac{1}{840}.$$

$$P(C) = \frac{4! - 1}{5040} = \frac{23}{5040}.$$

$$P(D) = \frac{9 \cdot 1 \cdot 8 \cdot 7}{5040} = \frac{504}{5040} = \frac{1}{10}.$$

Exercice 6. Il y a $C_{45}^6 = 8'145'060$ manières différentes de remplir la grille.

$$p(0) = \frac{C_6^0 \cdot C_{39}^6}{8'145'060} \cong 40,056\%.$$

$$p(1) = \frac{C_6^1 \cdot C_{39}^5}{8'145'060} \cong 42,413\%.$$

$$p(2) = \frac{C_6^2 \cdot C_{39}^4}{8'145'060} \cong 15,147\%.$$

$$p(3) = \frac{C_6^3 \cdot C_{39}^3}{8'145'060} \cong 2,244\%.$$

$$p(4) = \frac{C_6^4 \cdot C_{39}^2}{8'145'060} \cong 0,136\%.$$

$$p(5) = \frac{C_6^5 \cdot C_{39}^1}{8'145'060} \cong 0,00287\%.$$

$$p(6) = \frac{C_6^6 \cdot C_{39}^0}{8'145'060} \cong 0,0000123\%.$$