

PROBABILITÉS E01

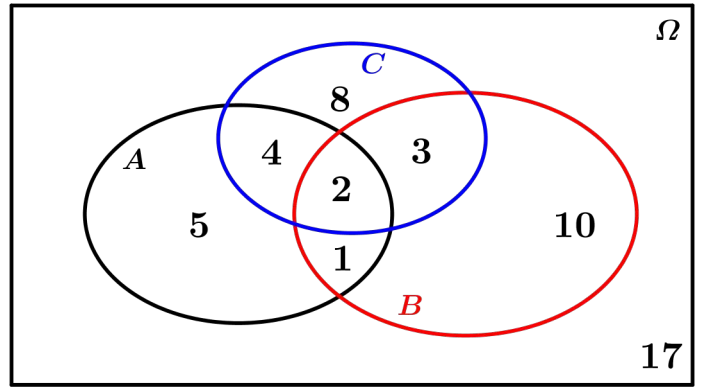
EXERCICE N°3 (Le corrigé)

On se donne le diagramme de Venn ci-contre :

On peut calculer, par exemple , que :

A possède $5+4+2+1=12$ éléments,
 → On note alors $\text{Card}(A)=12$

On peut lire que 17 éléments n'appartiennent à aucun des ensembles A, B ou C .
 → On note alors : $\text{Card}(\overline{A \cup B \cup C})=17$



Déterminer les nombres suivants :

- | | | |
|----------------------------|---------------------------------------|---------------------------------------|
| 1) $\text{Card}(B)$ | 2) $\text{Card}(C)$ | 3) $\text{Card}(A \cap B)$ |
| 4) $\text{Card}(B \cap C)$ | 5) $\text{Card}(A \cup B \cup C)$ | 6) $\text{Card}(\Omega)$ |
| 7) $\text{Card}(A \cup B)$ | 8) $\text{Card}(\overline{A \cup B})$ | 9) $\text{Card}(\overline{A \cap B})$ |

- | | | |
|---------------------|---------------------|----------------------------|
| 1) $\text{Card}(B)$ | 2) $\text{Card}(C)$ | 3) $\text{Card}(A \cap B)$ |
|---------------------|---------------------|----------------------------|

$$\begin{aligned} \text{Card}(B) \\ = 1+2+3+10 = \mathbf{16} \end{aligned}$$

$$\begin{aligned} \text{Card}(C) \\ = 4+2+3+8 = \mathbf{17} \end{aligned}$$

$$\begin{aligned} \text{Card}(A \cap B) \\ = 2+1 = \mathbf{3} \end{aligned}$$

- | | | |
|----------------------------|-----------------------------------|--------------------------|
| 4) $\text{Card}(B \cap C)$ | 5) $\text{Card}(A \cup B \cup C)$ | 6) $\text{Card}(\Omega)$ |
|----------------------------|-----------------------------------|--------------------------|

$$\begin{aligned} \text{Card}(B \cap C) \\ = 2+3 = \mathbf{5} \end{aligned}$$

$$\begin{aligned} \text{Card}(A \cup B \cup C) \\ = 5+4+2+1+8+3+10 = \mathbf{33} \end{aligned}$$

$$\text{Card}(\Omega) = 33+17 = \mathbf{50}$$

- | | | |
|----------------------------|---------------------------------------|---------------------------------------|
| 7) $\text{Card}(A \cup B)$ | 8) $\text{Card}(\overline{A \cup B})$ | 9) $\text{Card}(\overline{A \cap B})$ |
|----------------------------|---------------------------------------|---------------------------------------|

$$\begin{aligned} \text{Card}(A \cup B) \\ = 5+4+2+1+3+10 = \mathbf{25} \end{aligned}$$

$$\text{Card}(\overline{A \cup B}) = 50 - 25 = \mathbf{25}$$

$$\begin{aligned} \text{Card}(\overline{A \cap B}) &= \\ \text{Card}(A \cup B) &= 50 - 25 = \mathbf{25} \end{aligned}$$