Ex 16 : $P(A \cap B) = 0,3 \times 0,5 = 0,15$

$$P(A \cup B) = 0,3 + 0,5 - 0,15 = 0,65$$

Ex 17 : $P(A) = \frac{1}{3}$ $P(A \cup B) = \frac{1}{2}$ $P(B) = \alpha$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

a) $A \cap B = \phi \Rightarrow P(A \cap B) = 0$

$$P(A \cup B) = P(A) + P(B)$$

$$\frac{1}{2} = \frac{1}{3} + \alpha$$

$$\alpha = \frac{1}{2} - \frac{1}{3} = \frac{3-2}{2 \times 3} = \frac{1}{6}$$

b) $P(A \cap B) = P(A) \times P(B) = \frac{1}{3}\alpha$

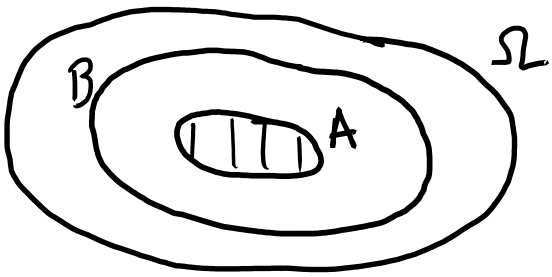
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$\frac{1}{2} = \frac{1}{3} + \alpha - \frac{1}{3}\alpha$$

$$\alpha - \frac{1}{3}\alpha = \frac{1}{2} - \frac{1}{3}$$

$$\frac{2}{3}\alpha = \frac{1}{6} \Rightarrow \alpha = \frac{1}{6} \times \frac{3}{2} = \frac{3}{12} = \frac{1}{4}$$

c)



$A \cap B = A \Rightarrow P(A \cap B) = P(A)$

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$P(A \cup B) = P(A) + P(B) - P(A)$

$P(A \cup B) = P(B)$

$\frac{1}{2} = \alpha$

Ex 18 : $P(A) = \frac{8}{32} = \frac{1}{4}$

$P(B) = \frac{1}{4}$ $\quad P(C) = \frac{4}{32} = \frac{1}{8}$

$P(A \cap B) = 0 \Rightarrow$ A et B sont incompatibles

$P(A \cap C) = \frac{1}{32}$ *

$P(A) \times P(C) = \frac{1}{4} \times \frac{1}{8} = \frac{1}{32}$ *

Donc A et C sont indépendants

$$P(B \cap C) = \frac{1}{32} \quad *$$

$$P(B) \times P(C) = \frac{1}{4} \times \frac{1}{8} = \frac{1}{32} \quad *$$

Donc B et C sont indépendants.

Ex 19 : $P(A) = 0,03 \qquad P(B) = 0,07$

a) $P(E_1) = P(A \cap B) = 0,03 \times 0,07 = 0,0021$

b) $P(E_2) = P(A \cup B) = P(A) + P(B) - P(A \cap B) =$

$= 0,03 + 0,07 - 0,0021 = 0,0979$

c) $P(E_3) = P(\overline{A \cup B}) = 1 - P(A \cup B) =$

$= 1 - 0,0979 = 0,9021$

ou $P(E_3) = P(\bar{A} \cap \bar{B}) = P(\bar{A}) \times P(\bar{B}) = 0,9021$