

Esercizio 4

sabato 8 maggio 2021 20:07

$$P(A) = \frac{6}{10}$$

$$P(B) = \frac{5}{10}$$

$$P(A|B) = \frac{4}{10}$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

↓

$$\begin{aligned} P(A \cap B) &= P(B) \cdot P(A|B) \\ &= \frac{5}{10} \cdot \frac{4}{10} = \frac{2}{10} = \frac{1}{5} \end{aligned}$$

⑤ Sono indipendenti?

$$P(A|B) = P(A)$$

$$\text{Siccome } \frac{4}{10} \neq \frac{6}{10}$$

oppure

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

$$P(A) \cdot P(B) = \frac{\overset{3}{\cancel{6}}}{\cancel{10}_2} \cdot \frac{\overset{1}{\cancel{8}}}{\cancel{10}_5} = \frac{3}{10}$$

$$P(A \cap B) = \frac{1}{5}$$

A e B Non Sono indipendenti

$$P(B|A) = \frac{P(A \cap B)}{P(A)}$$

$$= \frac{\frac{4}{10}}{\frac{6}{10}}$$

$$\frac{4}{10} \cdot \frac{10}{6} = \frac{40}{6} = \frac{20}{3}$$

$$= \frac{4}{10} \cdot \frac{10}{6} = \frac{40}{60} = \frac{2}{3}$$

$$\begin{aligned} P(A \cup B) &= P(A) + P(B) - P(A \cap B) \\ &= \frac{5}{10} + \frac{5}{10} - \frac{4}{10} = \frac{7}{10} \end{aligned}$$

$$P(\bar{B}|A) = 1 - P(B|A) \leftarrow \text{Formula}$$

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