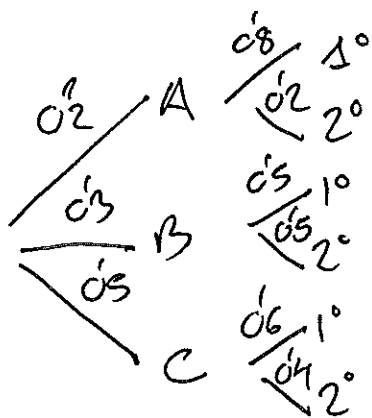


SOLUCIÓN

Salvo error u omisión

30-1-12

①



$$a/ P(2^\circ) = 0.2 \cdot 0.2 + 0.3 \cdot 0.5 + 0.5 \cdot 0.4 = 0.39$$

$$b/ P(B/1^\circ) = \frac{P(B \cap 1^\circ)}{P(1^\circ)} =$$

$$= \frac{P(B \cap 1^\circ)}{1 - P(2^\circ)} = \frac{0.3 \cdot 0.5}{1 - 0.39} = 0.2459$$

②

$$P(A \cup B) = \frac{3}{4}$$

$$P(\bar{B}) = \frac{2}{3}$$

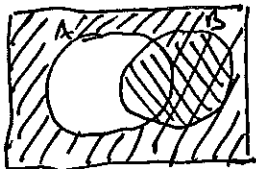
$$P(A \cap B) = \frac{1}{4}$$

$$\text{lé jue } P(B) = 1 - P(\bar{B}) = 1 - \frac{2}{3} = \frac{1}{3}$$

$$\text{lé jue } P(A \cup B) = P(A) + P(B) - P(A \cap B) \Rightarrow$$

$$\Rightarrow P(A) = P(A \cup B) + P(A \cap B) - P(B) = \frac{3}{4} + \frac{1}{4} - \frac{1}{3} = \frac{2}{3}$$

Dibujó

 \bar{A} ///

B ///

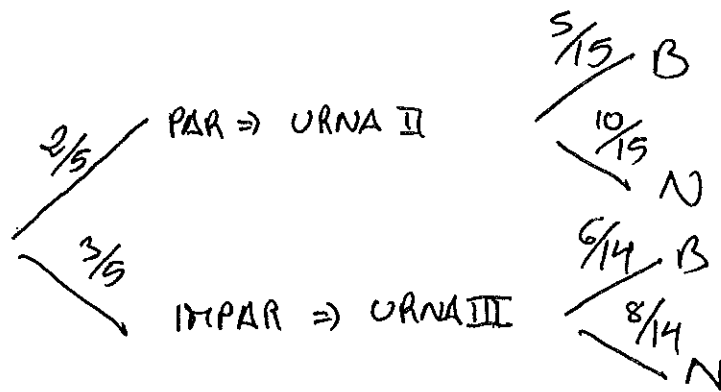
 $\bar{A} \cap B$ ~~///~~ \Rightarrow

$$\Rightarrow \bar{A} \cap B = B - (A \cap B) \Rightarrow$$

$$\Rightarrow P(\bar{A} \cap B) = P(B) - P(A \cap B) = \frac{1}{3} - \frac{1}{4} = \frac{1}{12}$$

(1/4)

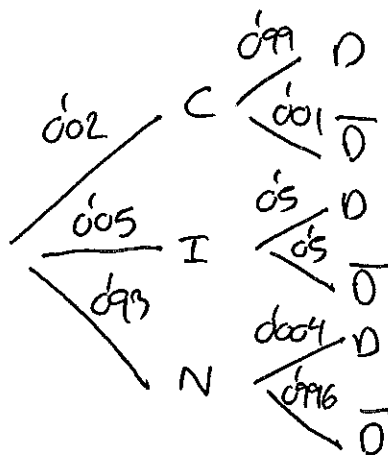
3° Paso en árbol.



$$a/ P(B) = \frac{2}{5} \cdot \frac{5}{15} + \frac{3}{5} \cdot \frac{6}{14} = \frac{2}{15} + \frac{9}{35} = \frac{41}{105} = 0.3905$$

$$b/ P(URNA II / B) = \frac{P(URNA II \cap B)}{P(B)} = \frac{\frac{2}{5} \cdot \frac{5}{15}}{\frac{41}{105}} = \frac{14}{41} = 0.3415$$

4° árbol



$$a/ P(O) = 0.02 \cdot 0.99 + 0.05 \cdot 0.5 + 0.93 \cdot 0.004 = 0.04852$$

$$b/ P(C/O) = \frac{P(C \cap O)}{P(O)} = \frac{0.02 \cdot 0.99}{0.04852} = 0.4081$$

5° $P(A) = 0.4$ $P(A \cup B) = 0.7$ $P(B) = p$

a/ A y B incompatibles $\Rightarrow P(A \cap B) = 0$

lé que $P(A \cup B) = P(A) + P(B)$ y luego

$$\text{que } 0.7 = 0.4 + p \Rightarrow p = 0.3$$

b/ A y B independientes $\Rightarrow P(A \cap B) = P(A) \cdot P(B)$

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

$$\Rightarrow 0.7 = 0.4 + p - P(A \cap B) \Rightarrow P(A \cap B) = p - 0.3$$

$$\Rightarrow p - 0.3 = 0.4 \cdot p \Rightarrow p - 0.4p = 0.3 \Rightarrow 0.6p = 0.3 \Rightarrow p = \frac{1}{2} \quad \left(\frac{2}{4}\right)$$

- 6° a/ Sean $m \equiv$ marca el peñalti
 $p \equiv$ se pararon el peñalti
 $f \equiv$ lo tiró fuera.

El espacio muestral es:

$$E = \{mm, mp, mf, pm, pp, pf, fm, fp, ff\}$$

Las probabilidades van dadas por el árbol

$$\begin{array}{l} \begin{array}{l} 0.8 \\ \swarrow \\ m \end{array} \begin{array}{l} 0.8 \quad m - 0.64 \\ \swarrow \\ 0.15 \quad p - 0.135 \\ \searrow \\ 0.05 \quad f - 0.04 \end{array} \\ \begin{array}{l} 0.15 \\ \swarrow \\ p \end{array} \begin{array}{l} 0.8 \quad m - 0.135 \\ \swarrow \\ 0.15 \quad p - 0.0225 \\ \searrow \\ 0.05 \quad f - 0.0075 \end{array} \\ \begin{array}{l} 0.05 \\ \swarrow \\ f \end{array} \begin{array}{l} 0.8 \quad m - 0.04 \\ \swarrow \\ 0.15 \quad p - 0.0075 \\ \searrow \\ 0.05 \quad f - 0.0025 \end{array} \end{array}$$

$$b/ \begin{array}{l} 0.8 \quad m \\ \swarrow \\ 0.2 \quad \bar{m} \end{array} \begin{array}{l} 0.8 \quad m \\ \swarrow \\ 0.2 \quad \bar{m} \end{array}$$

$$P(\text{marca al menos uno}) = 0.8 + 0.2 \cdot 0.8 = 0.96$$

- 7° $A \equiv$ tener un accidente
 $G \equiv$ necesitar guía.

Se que $P(A) = 0.2$

$$P(G/A) = \frac{P(G \cap A)}{P(A)} = \frac{P(G \cap A)}{0.2} = 0.85 \Rightarrow$$

$$\Rightarrow P(G \cap A) = 0.2 \cdot 0.85 = 0.17$$

$$P(\bar{G}/A) = \frac{P(\bar{G} \cap A)}{P(A)} = \frac{P(\bar{G} \cap A)}{0.2} = 0.1 \Rightarrow$$

$$\Rightarrow P(\bar{G} \cap A) = 0.1 \cdot 0.2 = 0.02$$

Hago una tabla

	G	\bar{G}	
A	0.17	0.03	0.2
\bar{A}	0.08	0.72	0.8
	0.25	0.75	1

a/ $P(G) = 0.25$

b/ $P(\bar{A}/G) = \frac{P(\bar{A} \cap G)}{P(G)} = \frac{0.08}{0.25} = \frac{3}{4}$

$$\textcircled{8} \quad X_i \sim N(54, 27)$$

$$\begin{aligned} \text{a/ } P(X_i \leq 8) &= P(Z_i \leq \frac{8-54}{\sqrt{27}}) = P(Z_i \leq -0.96) = \\ &= 0.8315 \end{aligned}$$

$$\begin{aligned} \text{b/ } P(3 \leq X_i \leq 4) &= P(\frac{3-54}{\sqrt{27}} \leq Z_i \leq \frac{4-54}{\sqrt{27}}) = \\ &= P(-0.89 \leq Z_i \leq -0.52) = P(Z \leq -0.52) - P(Z \leq -0.89) = \\ &= P(Z \geq 0.52) - P(Z \geq 0.89) = 1 - P(Z \leq 0.52) - (1 - P(Z \leq 0.89)) = \\ &= P(Z \leq 0.89) - P(Z \leq 0.52) = 0.8133 - 0.6985 = 0.1148 \end{aligned}$$