

PROBLEMS PROBABILITY

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PROBLEMS
10.

$$\begin{aligned} \text{Penill} & \begin{cases} P(\text{si}) : 0.10 < P(\text{abarro suena}) = 0.95 \\ P(\text{no}) : 0.90 < P(\text{no suena}) = 0.05 \end{cases} \\ & \begin{cases} P_1(\text{abarro suena}) = 0.03 \\ P_2(\text{no suena}) = 0.97 \end{cases} \end{aligned}$$

a)

$$\begin{aligned} CF &= P(\text{sonar abarro, no pill}) = 0.03 \times 0.90 \\ CP &= \left(\begin{array}{l} \text{casos totales} \\ \text{suena abarro} \end{array} \right) = 0.03 \cdot 0.9 + 0.95 \cdot 0.1 \end{aligned} \left\{ \begin{array}{l} CF \\ CP \end{array} \right. = \frac{0.03 \cdot 0.90}{0.03 \cdot 0.90 + 0.95 \cdot 0.1} = \underline{\underline{0.221}}$$

b)

$$\begin{aligned} CF &= P(\text{hagí pill i soni}) = 0.10 \cdot 0.95 \\ CP &= \left(\begin{array}{l} \text{casos totales} \\ \text{suena abarro} \end{array} \right) = 0.03 \cdot 0.9 + 0.95 \cdot 0.1 \end{aligned} \left\{ \begin{array}{l} CF \\ CP \end{array} \right. = \frac{0.10 \cdot 0.95}{0.03 \cdot 0.9 + 0.95 \cdot 0.1} = \underline{\underline{0.228}}$$

c) $CF = P(\text{sonar i hagí pill}) = 0.05 \cdot 0.1$

$$CP = \left(\begin{array}{l} \text{casos totales} \\ \text{no suena} \end{array} \right) = 0.97 \cdot 0.90 + 0.05 \cdot 0.1 \left\{ \begin{array}{l} CF \\ CP \end{array} \right. = \frac{0.05 \cdot 0.1}{0.97 \cdot 0.90 + 0.05 \cdot 0.1} = \underline{\underline{0.005}}$$