

## Ejercicios probabilidad condicional y total

①  $\Omega = 1000$

125 hombres usan gafas  
 415 no usan  
 115 mujeres que usan

a)  $P(H) = \frac{600}{1000} = \frac{3}{5}$

b)  $P(M) = \frac{400}{1000} = \frac{2}{5}$

c)  $P(G) = \frac{300}{1000} = \frac{3}{10}$

d)  $P(G/M) = \frac{115}{400} \cdot \frac{400}{1000} = \frac{23}{80}$   
 sabemos que es mujer

②

a)  $P(R) = \frac{2}{60} \cdot \frac{3}{10} + \frac{5}{10} \cdot \frac{4}{60} = \frac{1}{10} + \frac{4}{10} = \frac{5}{10} = \frac{1}{2}$

$\frac{4}{60} \cdot \frac{6}{10} =$

$$b) P(C|N) = \frac{2}{6} \cdot \frac{1}{10} + \frac{4}{6} \cdot \frac{2}{10} = \frac{1}{30} + \frac{2}{15} = \frac{5}{30} = \frac{1}{6}$$

$$c) P(C|N) = \frac{\frac{4}{6} \cdot \frac{1}{10}}{\frac{1}{6}} = \frac{1}{5}$$

$$d) P(C|N) = \frac{\frac{4}{6} \cdot \frac{2}{10}}{\frac{1}{6}} = \frac{12}{15} = \frac{4}{5}$$

③

$$\Omega = 5$$

$$P(F \cap F) = P(F) \cdot P(F) = \frac{3}{5} \cdot \frac{3}{4} = \frac{9}{20} = \frac{3}{10}$$

Ejercicios teorema Bayes

①

$$a) P(M)$$

$$P(F) = 0.4$$

$$P(NF) = 0.6$$

$$P(M|F) = 0.25$$

$$P(M|NF) = 0.6$$

$$P(M) = 0.25 \cdot 0.4 + 0.6 \cdot 0.6$$

$$= \frac{1}{4} \cdot \frac{2}{5} + \frac{3}{5} \cdot \frac{3}{5} = \frac{1}{10} + \frac{9}{25} = \frac{23}{50}$$

$$b) P(F \cap H) = \frac{4}{10} \cdot \frac{3}{4} = \frac{3}{10}$$

$$c) P(F|M) = \frac{P(M|F) \cdot P(F)}{P(M)} = \frac{0.25 \cdot 0.4}{\frac{23}{50}} = \frac{\frac{1}{10}}{\frac{23}{50}} = \frac{5}{23}$$



②

 $[1, 2, 3, 4]$ 

a)

$$P(\lambda) = (0.4, 0.3, 0.2, 0.1)$$

$$\lambda = 1 \cdot 0.4 + 2 \cdot 0.3 + 3 \cdot 0.2 + 4 \cdot 0.1$$

$$\lambda = 2.0$$

Generales de probabilidad

①

a)

$$P(A) = \frac{P(A \cap B)}{P(B)} = \frac{3}{36} \cdot \frac{1}{12}$$

Combinaciones favorables

$$\begin{array}{r} 1 \ 4 \ 1 \\ 1 \ 2 \ 1 \\ 2 \ 1 \end{array} \Bigg\} 3$$

$$b) P(B) = \frac{3}{6} = \frac{1}{2}$$

1, 3, 5

②

Quito 2

$$P(ND) = \frac{48! - 44!}{5!} = \frac{48 \cdot 47 \cdot 46 \cdot 45 \cdot 44}{5!}$$

$$P(T) = \frac{50! - 45!}{5!} = \frac{50 \cdot 49 \cdot 48 \cdot 47 \cdot 46}{5!}$$

$$P(ND) = \frac{P(ND)}{P(T)} = \frac{45 \cdot 44}{50 \cdot 49} = 0.808$$

$$P(D) = 1 - 0.808 = 0.192 = \frac{47}{245}$$

③

$$a) P(A \cup B) = 0.6 + 0.8 - 0.5 = 0.9$$

$$b) P(D \cup C - D \cap C) = 0.6 + 0.8 - 1 = 0.4$$

$$④ \quad p_1 = \frac{365}{365} \quad p_2 = \frac{364}{365} \quad \dots \quad p_n = \frac{365 - (n-1)}{365} \quad \text{E}_n^n$$

$$= P(n) = \frac{365 \cdot 364 \cdot \dots \cdot (365 - n + 1)}{365^n}$$

$$⑤ \quad a) \quad \text{Suma } B = (2,6), (3,5), (4,4), (5,3), (6,2)$$

$$P(A) = \frac{5}{36}$$

$$b) \quad P(B) = \frac{3}{6} = \frac{1}{2}$$

⑥ ~~El~~ CODIGO

⑦.