- Problema 1

4 Sabores, 3 Tipos, 3 Tamaños

$4 \times 3 \times 3$ = 36 formas diferentes

- Problema 2

$$20 \, C \, 10 = \frac{20!}{(20-10)! \, 10!} = \frac{20!}{10! \, 10!}$$

$$= \frac{20 \times 19 \times 18 \times 17 \times 16 \times 15 \times 14 \times 13 \times 12 \times 11 \times 10!}{10! \cdot 10!}$$

$$= 184756 \quad \text{Grupos}$$

Problema 3

Autos Analizados : 3   Cantidad de pruebas

Marcas de Gasolina: 5 $= 3 \times 5 \times 7$

Lugares de Prueba : 7 $= 210$ p

Problema 4   4 Bombillas de 35w $C(15,3) = 455$ formas
5   60w
6   75w

a) $C(6,2) \times C(9,1) = 15 \times 9 = 135$ formas $\rightarrow P(2 \text{ de } 75w) = \frac{135}{455} = \frac{27}{91} \approx 0,2967033$

b) $P(3 \text{ de } 35w) + p(3 \text{ de } 60w) + p(3 \text{ de } 75w) \rightarrow p(3 \text{ de } 7w) = \left(\frac{4}{15}\right)\left(\frac{3}{14}\right)\left(\frac{2}{13}\right) = \frac{4}{455}$, $0,008$

$P(3 \text{ de } 60w) = \left(\frac{5}{15}\right)\left(\frac{4}{14}\right)\left(\frac{3}{13}\right) = \frac{2}{91} \approx 0,021978$, $3 \text{ de } 75w \cdot \left(\frac{6}{15}\right)\left(\frac{5}{14}\right)\left(\frac{4}{13}\right) = \frac{4}{91} = 0,043956$

$$= \frac{4}{455} + \frac{2}{91} + \frac{4}{91} = \frac{34}{455} \approx 0,0747253$$

c) $C(4,1) \times C(5,1) \times C(6,1)$

$= 120 \text{ formas}$

$P(1 \text{ de cada tipo}) = \dfrac{120}{455} = \dfrac{24}{91} \approx 0,263736$ ✓

Problema 5

A: La mujer tiene la enfermedad

B: La prueba de negativo

$$P(A \backslash B) = \dfrac{P(B \backslash A)\, P(A)}{P(B)}$$
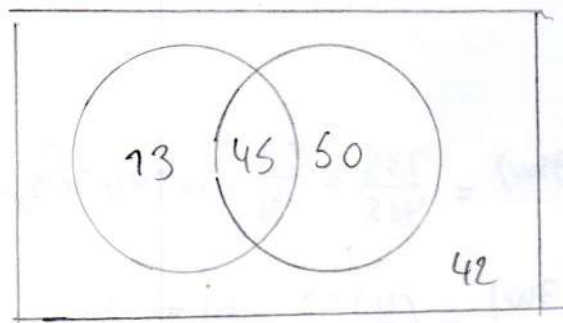
$P(B/A) = 0,13$ ✓

$P(A) = 0.07$ ✓

$P(B) = P(B/A) \cdot P(A) + P(B/\sim A) \cdot P(\sim A) \rightarrow P(B/\sim A) = 4\%$

$P(\sim A) = 1 - p(A) = 1 - 0.07 = 0.93$ ✓

$P(B) = 0.13(0.07) + 0.04(0.93) = 0.0463$ ✓

$P(A/B) = \dfrac{(0.13)(0.07)}{0.0463} = 0.1965 = 19.65\%$ ✓
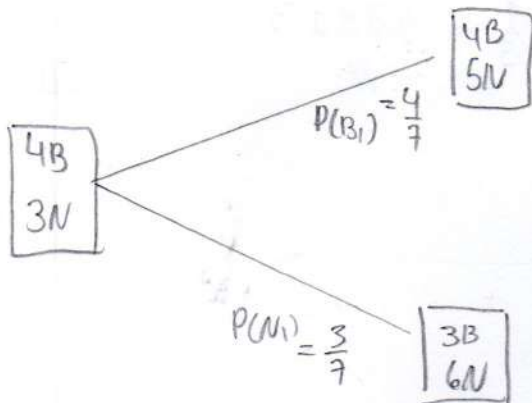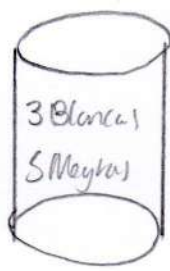

Problema 6

150

58 m

95 Deporte

108 =/mbos

c) $P(I) = \dfrac{58}{150} = \dfrac{29}{50} = 0,58$

b) $P(D/I) = \dfrac{P(D \cap I)}{P(I)} = \dfrac{45/155}{58/151} = \dfrac{45}{58} = 0,77586$

c) $P(\text{Ninguna}) = \dfrac{42}{150} = \dfrac{7}{25} = 0,28$

Problema 7 π_0 4 bolas blancas; 3 negras; 2da 3 blancas, 5 negras

4 Blancas
3 Negras

3 Blancas
5 Negras

$P(B_2/B_1) = \frac{4}{9}$

$P(N_2/B_1) = \frac{5}{9}$

$\boxed{\begin{array}{c}4B\\5N\end{array}}$

$P(B_1) = \frac{4}{7}$

$\boxed{\begin{array}{c}4B\\3N\end{array}}$

$P(N_1) = \frac{3}{7}$

$\boxed{\begin{array}{c}3B\\6N\end{array}}$ $P(B_2/N_1) \; \frac{3}{9}$

$P(N_2/N_1) = \frac{6}{9}$

$P(N_2/B_1) \cdot P(B_1) + P(N_2/N_1) \cdot P(N_1)$

$\frac{5}{9}\left(\frac{4}{7}\right) + \frac{6}{9}\left(\frac{3}{7}\right)$

$= \frac{38}{63}$

≈ 0.603175

Problema 8

$T_1 = 80\%$

$P(A) = 0.8$

$P(A_1) = 0.2$

$T_2 = 70\%$

$P(B) = 0.7$

$P(B_1) = 0.3$

$P(A \cap B_1) = (0.8)(0.3) = \frac{6}{25}$

$P(B \cap A_1) = (0.7)(0.2) = \frac{7}{50}$

$P(A \cap B) = (0.8)(0.7) = \frac{14}{25}$

$= \frac{6}{25} + \frac{7}{50} + \frac{14}{25} = \frac{47}{50} = 0.94$

Problema 9

	B	B^c	
A	0.14	0.21	0.35
A^c	0.59	0.06	0.65
	0.73	0.27	7

a) $P(A \cap B) = 0.14$

b) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
$= 0.35 + 0.73 - 0.14$
$= 0.94$

c) $P(A \cup B^c) = P(A) + P(B^c) - P(A \cap B^c)$
$0.35 + 0.27 - 0.21$
$= 0.41$

d) $P(A^c \cup B^c) = P(A^c) + P(B^c) - P(A^c \cap B^c)$
$= 0.65 + 0.27 - 0.06$
$= 0.86$

10) P(No graduado y trabaja en línea de Producción)

$$= \frac{20}{200} = \frac{1}{10} = 0,1$$

$$P(T.l.P) = \frac{60}{200} = \frac{3}{10} = 0,3$$

$$P(No\ graduado / T \cap P) = \frac{\frac{20}{200}}{\frac{60}{200}} = \frac{20}{60} = \frac{1}{3} \approx 0,3333$$