1) $P(A|B) = \frac{2}{5} = 0,4$

$P(A|\overline{B}) = \frac{1}{10} = 0,1$

$P(B|A) = \frac{3}{5} = 0,6 \Rightarrow P(\overline{B}|A) = 0,4$

$P(A|B) = \frac{P(B|A)\cdot P(A)}{P(B)} \Rightarrow P(A) = \frac{0,4\,P(B)}{0,6} = \frac{2}{3}\cdot P(B)$

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

$P(A) = P(B)\cdot P(B|A) + P(\overline{B})\cdot P(\overline{B}|A)$

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

$\Rightarrow P(A) = \frac{0,1\cdot P(\overline{B})}{0,4} = \frac{1}{4}P(\overline{B})$

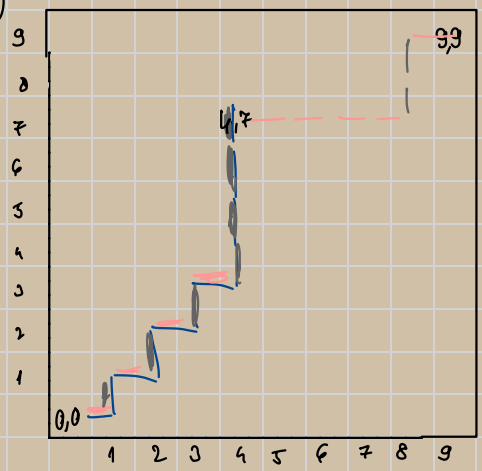
$\frac{2}{3}x = \frac{1}{4}(1-x) \quad |\cdot 12$

$8x = 3 - 3x$

$11x = 3 \Rightarrow x = \frac{3}{11} \Rightarrow P(B) = \frac{3}{11}$

$P(A) = \frac{2}{3}\cdot\frac{3}{11} = \frac{2}{11}$

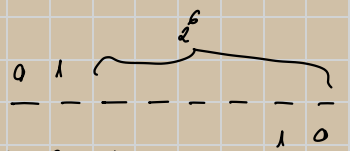
2)



m: $C_{11}^4 \cdot C_7^5$

m: C_{18}^9

$p = \frac{C_{11}^4 \cdot C_7^5}{C_{18}^9}$

3) 

$2^9 + 2^6 - 2^4 = 64 + 64 - 16 = 128 - 16 = 112$

4) $P(H_1) = \frac{3}{4} = 0,75$ prim Brașov
$P(H_2) = 0,25$ prim Craiova

$P(A_+ | H_1) = \frac{1}{3} = 0,33$, A_+ băcaș
$P(A_+ | H_2) = \frac{1}{4} = 0,25$

$$P(H_1 | A_-) = \frac{P(H_1) \cdot P(A_- | H_1)}{P(H_1) \cdot P(A_- | H_1) + P(H_2) \cdot P(A_- | H_2)} = \frac{\frac{3}{4} \cdot \frac{2}{3}}{\frac{1}{2} + \frac{1}{4} \cdot \frac{3}{4}} = \frac{\frac{8}{16}}{\frac{8}{16} + \frac{3}{16}} = \frac{8}{11}$$

6) Pt. a arăta că n evenimente sunt independente vom verifica $2^n - (n+1)$ rel.

$\Rightarrow 2^5 - 6 = 32 - 6 = 26$

7) $P(H_1) = 0,8$
$P(H_2) = 0,9$
$P(H_3) = 0,7$

H_i – rezolvă corect problema i

$P(H_1 \cap H_2 \cap \overline{H_3}) = 0,8 \cdot 0,9 \cdot 0,3 = 0,216$

8) 

$p = \frac{m}{n}$ – fav.
– posibile

$n = 2^4 = 16$
$m = C_4^2 = 6$

$\Rightarrow p = \frac{6}{16} = \frac{3}{8}$

9) $P(H_1) = 0,6$ $\quad H_i$ – vânătorul i nimerește ținta

$P(H_2) = 0,8$

$P(H_3) = 0,7$

$1 - P(\overline{H_1} \cap \overline{H_2} \cap \overline{H_3}) = 1 - 0,4 \cdot 0,2 \cdot 0,3 = 1 - 0,024 = 0,976$

10) $P(R_1) = 0,75$ $\quad P(A_1) = 0,25$

$P(R_2) = 0,6$ $\quad P(A_2) = 0,4$

$P(R_3) = 0,45$ $\quad P(A_3) = 0,55$

$P(A) = P(H_1) \cdot P(H_1 | A_1) + P(H_2) \cdot P(H_2 | A_2) + P(H_3) \cdot P(H_3 | A_3) =$

$= \frac{1}{3}(0,25 + 0,4 + 0,55) = \frac{1,2}{3} = 0,4$