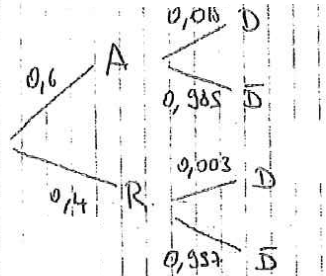


Problème 3:

[A]

a)



$$b) P(D) = 0,6 \cdot 0,015 + 0,4 \cdot 0,003$$

$$\approx 1,02\%$$

$$c) P(R|D) = \frac{P(R \cap D)}{P(D)} = \frac{0,4 \cdot 0,003}{0,0102} = \frac{2}{17} \approx 11,76\%$$

Partie B 25V, 15T, 10O

$$d) P(\text{au moins 1 O}) = 1 - P(\text{aucun Orange}) > 0,9 \Leftrightarrow$$

$$1 - C_n^0 \left(\frac{1}{5}\right)^0 \left(\frac{4}{5}\right)^n > 0,9 \Leftrightarrow$$

$$0,1 > \left(\frac{4}{5}\right)^n \Leftrightarrow$$

$$\ln(0,1) > n \cdot \ln\left(\frac{4}{5}\right) \Leftrightarrow$$

$$\frac{\ln(0,1)}{\ln(4/5)} < n \Leftrightarrow$$

$$10,31 < n$$

Et faut ouvrir 11 cantous.

$$e) \frac{C_3^{15}}{C_3^{50}} = \frac{455}{19600} \approx 2,32\%$$

$$f) P(2V) + P(2T) + P(2O) =$$

$$\frac{C_2^{25} C_1^{25}}{C_3^{50}} + \frac{C_2^{15} C_1^{35}}{C_3^{50}} + \frac{C_2^{10} C_1^{40}}{C_3^{50}} = \frac{7500 + 3675 + 1800}{19600} = 66,2\%$$

$$g) \frac{C_1^{25} C_1^{15} C_1^{10}}{C_3^{50}} = \frac{25 \cdot 15 \cdot 10}{19600} = \frac{3750}{19600} \approx 19,13\%$$

$$h) P(\emptyset O) + P(1 O) = \frac{C_0^{10} C_3^{40}}{C_3^{50}} + \frac{C_1^{10} C_2^{40}}{C_3^{50}} \approx 90,80\%$$