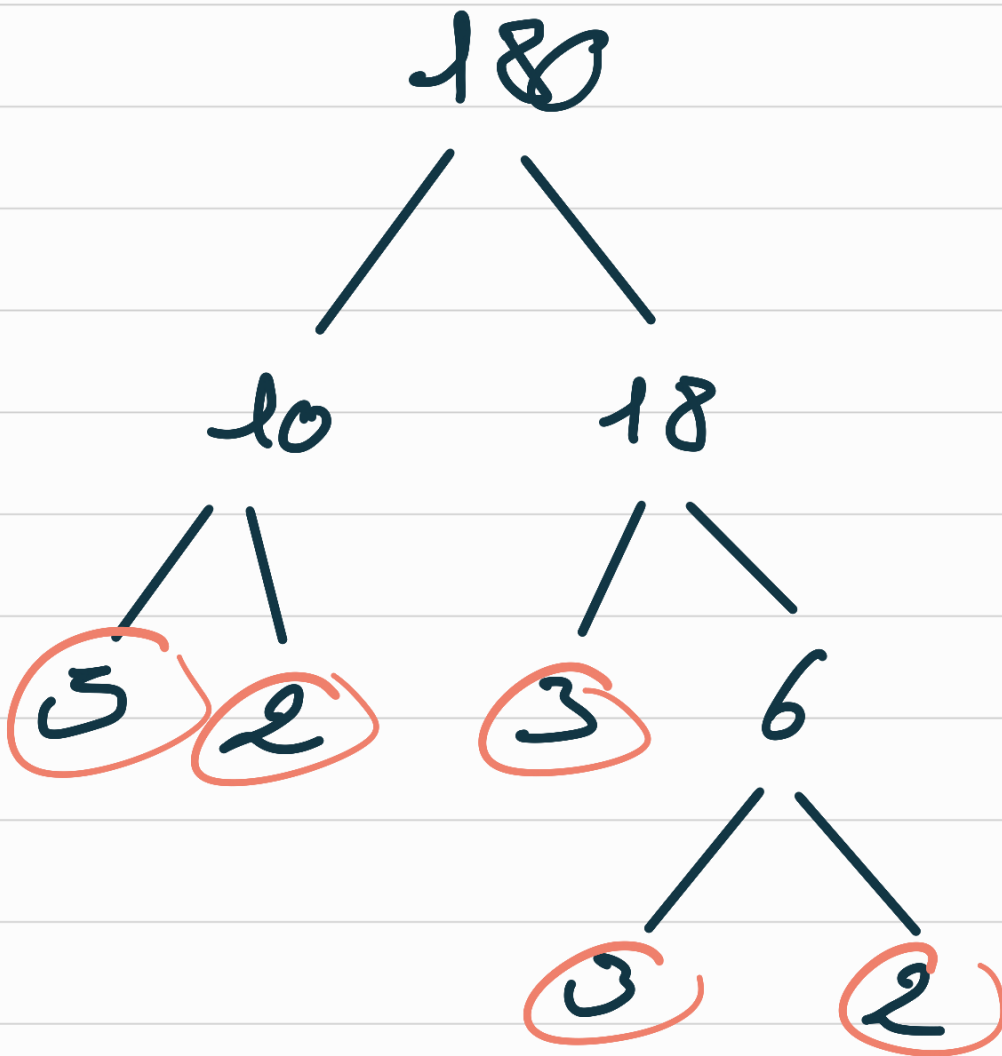
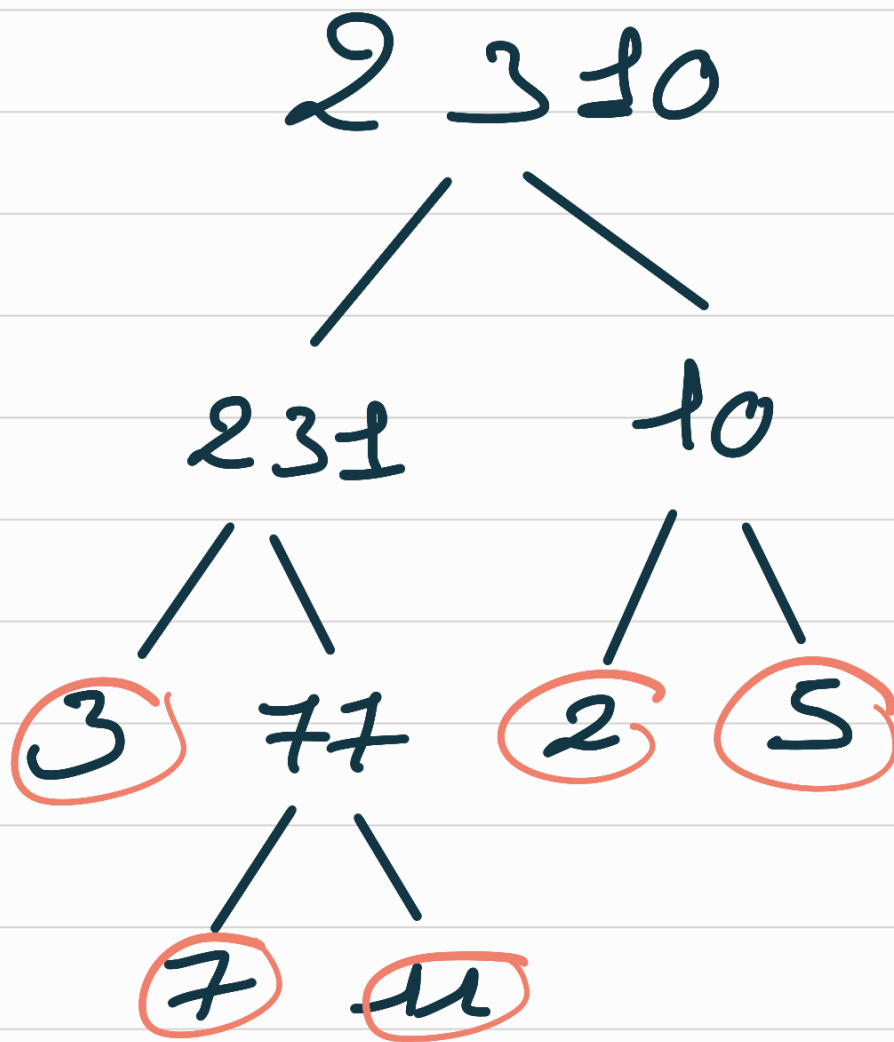


Arithmétique

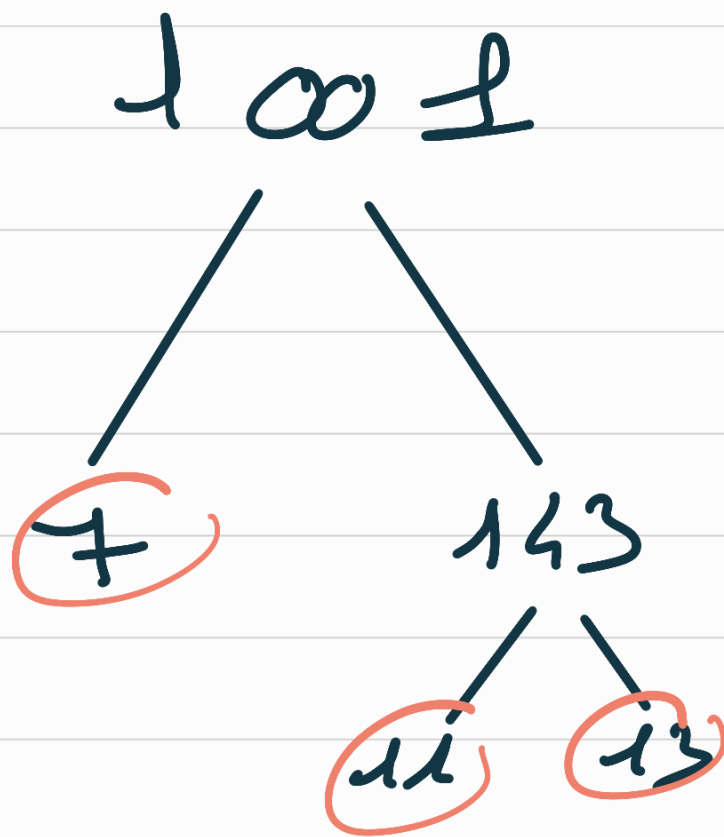
exercice 31 :



$$\begin{aligned} 180 &= 2 \times 2 \times 3 \times 3 \times 5 \\ &= 2^2 \times 3^2 \times 5. \end{aligned}$$



$$2310 = 2 \times 3 \times 5 \times 7 \times 11$$



$$1001$$



$$100$$



$$100 - 2 \times 1 = 98$$



$$98 = 7 \times 14, \text{ donc } 98 \text{ est divisible par } 7.$$

exercice 32:

$$2) . 23 = 7 \times 3 + 2$$

$$\hookrightarrow 23 \equiv 2 \quad [7].$$

$$. 48 = 7 \times 7 - 1$$

$$\hookrightarrow 48 \equiv -1 \quad [7].$$

$$. 10^4 = 6 \times 1666 + 4$$

$$\hookrightarrow 10^4 \equiv 4 \quad [6].$$

$$4) \quad 12 \ 345 = 9 \times 1 \ 371 + 6$$

$$9 \times 1 \ 400 = 12 \ 600$$

$$9 \times 1 \ 300 = 11 \ 700$$

$$6) \quad 9 \times 1 \ 370 = 12 \ 330$$

$$9 \times 1 \ 371 = 12 \ 339$$

$$6 \ 789 = 9 \times 754 + 3$$

$$9 \ 876 = 9 \times 1097 + 3$$

clenc :

$$12345 \times 6789 + 9876$$

$$\equiv 6 \times 3 + 3 \quad [9]$$

$$\equiv 21 \quad [9]$$

$$\equiv 3 \quad [9]$$



Probabilities

exercice 6.3:

1) $\Omega = \{(1, 1); (1, 2); (1, 3); (1, 4); (1, 5); (1, 6); (2, 1); (2, 2); (2, 3); \dots; (6, 5); (6, 6)\}$.

It has 36 issues.

$$2) \{ (1, 8), (8, 1), (2, 7), (7, 2), (3, 6), (6, 3), (4, 5), (5, 4) \}$$

$$P(g^*) = \frac{8}{36} = \frac{2 \times 4}{2 \times 18}$$

$$= \frac{4}{18}$$

$$= \frac{2}{9}.$$

$$3) P(\text{"different"})$$

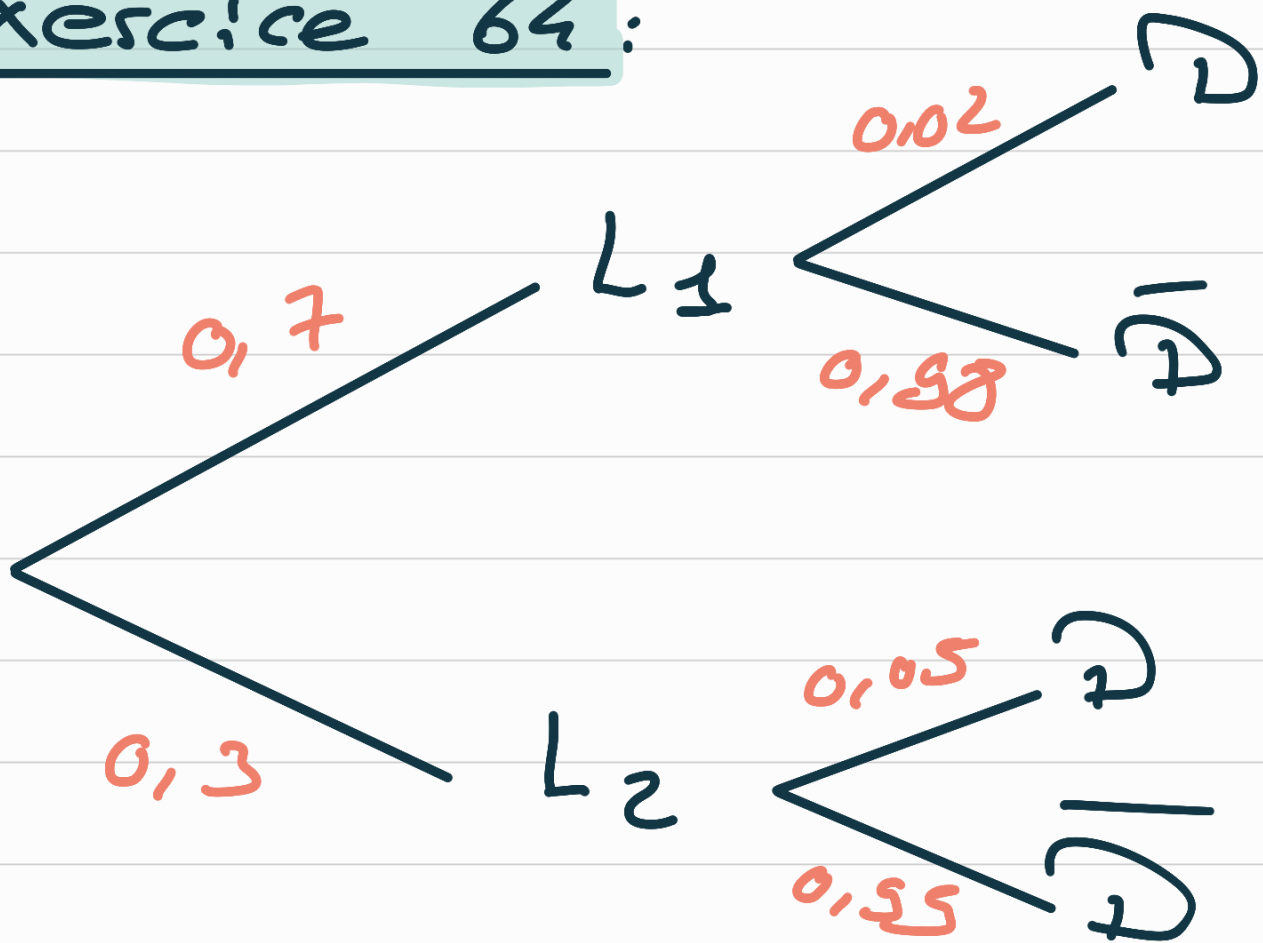
$$= 1 - P(\text{"pareil"})$$

$$P(\text{"pareil"}) = \frac{6}{36} = \frac{1}{6}$$

donc

$$P(\text{"different"}) = 1 - \frac{1}{6} = \frac{5}{6}.$$

exercice 64:



1) D'après la formule des probabilités totales :

$$P(D) = P(L_1 \cap D) + P(L_2 \cap D)$$

$$= 0,7 \times 0,02 + 0,3 \times 0,05$$

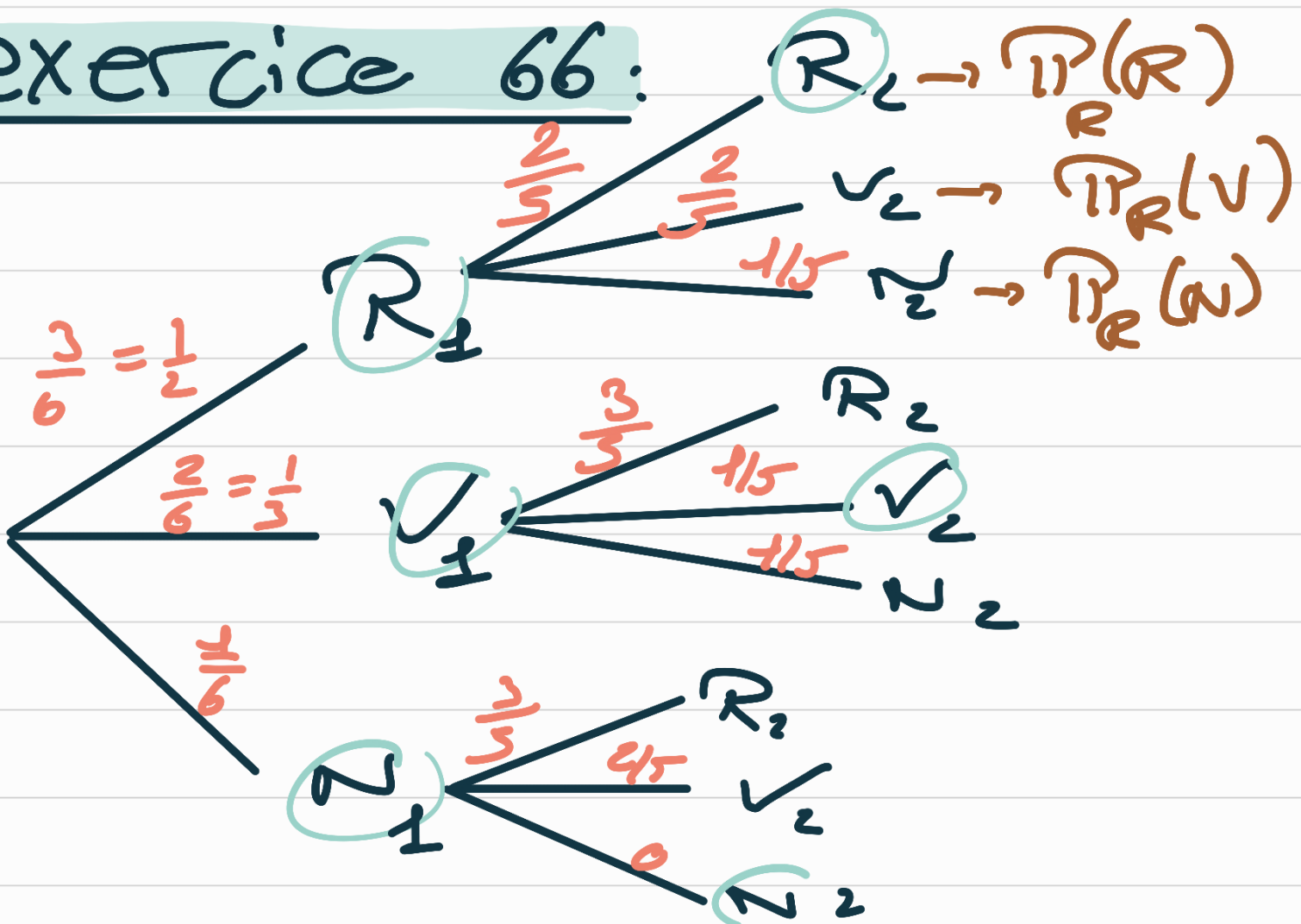
$$= 0,029.$$

$$2) \mathbb{P}_D(L_2) = \frac{\mathbb{P}(D \cap L_2)}{\mathbb{P}(D)}$$

$$= \frac{0,3 \times 0,05}{0,029}$$

$$\approx 0,517.$$

exercice 66:



$$1) \mathbb{P}(\text{"même couleur"})$$

$$= \frac{\cancel{2}}{\cancel{2}} \times \frac{\cancel{2}}{\cancel{5}} + \frac{1}{3} \times \frac{1}{3} + \frac{1}{6} \times 0$$

$$= \frac{1}{5} + \frac{1}{15}$$

$$= \frac{3}{15} + \frac{1}{15}$$

$$= \frac{4}{15}.$$

$$2) \mathbb{P}_R(2) = \frac{2}{5}.$$

$$3) P(R_1) = \frac{3}{6} = \frac{1}{2}$$

$$\begin{aligned} P(N_2) &= P(R_1 \cap N_2) \\ &\quad + P(V_1 \cap N_2) \\ &\quad + P(N_1 \cap N_2) \\ &= \frac{1}{2} \times \frac{1}{5} + \frac{1}{3} \times \frac{1}{5} + \frac{1}{6} \times 0 \\ &= \frac{1}{10} + \frac{1}{15} \\ &= \frac{1}{6} \end{aligned}$$

$$P(N_2 \cap R_1) = \frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$$

$$P(R_1) \times P(N_2) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$$

A et B sont indépendants

$$\Leftrightarrow P(A \cap B) = P(A) \times P(B)$$

donc R_1 et N_2 ne sont pas indépendants.