

Corrigé Savoir 5.3

Corrigé Entraînement n°1

$$1) c_{n+1} = q \times c_n = -3c_n \quad \text{et} \quad d_{n+1} = \frac{d_n}{4}$$

$$2) c_n = c_0 \times q^n = 4 \times (-3)^n \quad \text{et} \quad d_n = d_p \times q^{n-p} = 128 \times \left(\frac{1}{4}\right)^{n-2} = \frac{128}{4^{n-2}}$$

$$3) c_1 = -3 \times 4 = -12 \quad (\text{récurrence})$$

$$d_1 = 128 \times 4 = 512 \quad (\text{récurrence})$$

$$c_7 = 4 \times (-3)^7 = -8\,748 \quad (\text{explicite})$$

$$d_7 = \frac{128}{4^5} = \frac{1}{8} \quad (\text{explicite})$$

Corrigé Entraînement n°2

$$1) s_{n+1} = q \times s_n = 6c_n \quad \text{et} \quad t_{n+1} = -\frac{t_n}{8}$$

$$2) s_n = s_0 \times q^n = -\frac{6^n}{162} \quad \text{et} \quad t_n = t_p \times q^{n-p} = 144 \times \left(\frac{-1}{8}\right)^{n-4}$$

$$3) s_1 = 6 \times \frac{-1}{162} = -\frac{1}{27} \quad (\text{récurrence}) \quad t_5 = 144 \times \left(-\frac{1}{8}\right) = -18 \quad (\text{récurrence})$$

$$s_e = -\frac{6^6}{162} = -288 \quad (\text{explicite})$$

$$t_0 = 144 \times \left(-\frac{1}{8}\right)^{-4} = 144 \times (-8)^4 = 589\,824$$

Corrigé Entraînement n°3

$$1) c_{n+1} = q \times c_n = \frac{2}{7} c_n \quad \text{et} \quad d_{n+1} = -10d_n$$

$$2) c_n = c_0 \times q^n = -1 \times \left(\frac{2}{7}\right)^n = -\frac{2^n}{7^n} \quad \text{et} \quad d_n = d_p \times q^{n-p} = \frac{1}{3000} \times (-10)^{n-3} = \frac{(-10)^{n-3}}{3000}$$

$$3) c_1 = -1 \times \frac{2}{7} = -\frac{2}{7} \quad (\text{récurrence})$$

$$d_2 = \frac{1}{3000} \div (-10) = \frac{-1}{30\,000} \quad (\text{récurrence à l'envers})$$

$$c_5 = \frac{-2^5}{7^5} = -\frac{32}{16\,807} \quad (\text{explicite})$$

$$d_7 = \frac{(-10)^4}{3000} = \frac{10\,000}{3000} = \frac{10}{3} \quad (\text{explicite})$$