

Feo3b

Exercice 1 - 3d)e)

3) Déterminer pour chaque expression a et q tq $U_n = a \times q^n$

d) $U_n = \sqrt{3^{3n-1}}$

$$= (3^{3n-1})^{1/2}$$

$$= 3^{\frac{3n-1}{2}}$$

$$= 3^{\frac{3n}{2}} \times 3^{-1/2}$$

$$= (3^{3/2})^n \times \frac{1}{\sqrt{3}}$$

$$= (\sqrt{27})^n \times \frac{\sqrt{3}}{3}$$

$$U_n = (3\sqrt{3})^n \times \frac{\sqrt{3}}{3}$$

$$a = \frac{\sqrt{3}}{3} \text{ et } q = 3\sqrt{3}$$

e) $U_n = \frac{12^{2n}}{25^{-n+2}} \times (\sqrt{15})^{-3n}$

$$= \frac{144^n}{25^{-n} \times 25^2} \times (\sqrt{15})^{-3n}$$

$$= \frac{144^n}{625 \times (25^{-1})^n} \times (15^{1/2})^{-3n}$$

$$= \frac{1}{625} \times 144^n \times 25^n \times (15^{1/2})^{-3n}$$

$$= \frac{1}{625} \times (144 \times 25 \times 15^{-3/2})^n$$

$$= \frac{1}{625} \times (144 \times 25 \times \frac{1}{15\sqrt{15}})^n$$

$$= \frac{1}{625} \times \left(\frac{3600}{15\sqrt{15}}\right)^n$$

$$= \frac{1}{625} \times \left(\frac{240}{\sqrt{15}}\right)^n$$

$$U_n = \frac{1}{625} \times (16\sqrt{15})^n$$

$$a = \frac{1}{625} \text{ et } q = 16\sqrt{15}$$

$$\text{car } 15^{-3/2} = \frac{1}{\sqrt{15}^3} = \frac{1}{15\sqrt{15}}$$