

Étudier le comportement en $+\infty$ des suites suivantes :

$$1. \quad u_n = \frac{n}{\cos\left(\frac{1}{n}\right)}$$

$$2. \quad u_n = \sqrt{n+1} - \sqrt{n}$$

$$3. \quad u_n = \ln(n+1) - \ln(n^2)$$

$$4. \quad u_n = \left(1 + \frac{2}{n}\right)^n$$

$$5. \quad u_n = \frac{2^n + n}{2^n}$$

$$6. \quad u_n = \frac{n + (-1)^n}{n - \ln(n^3)}$$

$$7. \quad u_n = \frac{1}{n^2} \sum_{k=1}^n k$$

$$8. \quad u_n = \frac{3^n - 4^n}{3^n + 4^n}$$

$$9. \quad u_n = \frac{\sin n}{n}$$

$$10. \quad u_n = \frac{1 + (-1)^n}{n}$$

$$11. \quad u_n = n^2 - n \cos n + 2$$

$$12. \quad u_n = \frac{n! + (n+1)!}{(n+2)!}$$

$$13. \quad u_n = \ln(2^n + n)$$

$$14. \quad u_n = n^{\frac{1}{n}}$$

$$15. \quad u_n = (\ln n)^n$$

$$16. \quad u_n = \frac{n^3 + 2^n}{3^n}$$

$$17. \quad u_n = (n^2 + n + 1)^{\frac{1}{n}}$$

$$18. \quad u_n = \frac{1}{a^n} \sum_{k=1}^n b^k$$

$$19. \quad u_n = n^2 \left(\cos\left(\frac{1}{n^2}\right) - 1 \right)$$