

Determine if (a) a positive-term series is convergent or divergent, or (b) a series that contains negative terms is absolutely convergent, conditionally convergent, or divergent.

$$1) \sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{n(n+1)(n+2)}} \qquad 2) \sum_{n=1}^{\infty} \left(\frac{-2}{3} \right)^{n-1}$$

$$3) \sum_{n=0}^{\infty} \frac{1}{2 + \left(\frac{1}{2} \right)^n} \qquad 4) \sum_{n=1}^{\infty} \frac{3^{2n+1}}{n 5^{n-1}}$$

$$5) \sum_{n=1}^{\infty} \frac{n!}{\ln(n+1)} \qquad 6) \sum_{n=1}^{\infty} \frac{n^2-1}{n^2+1}$$

$$7) \sum_{n=1}^{\infty} \frac{e^n}{n^e} \qquad 8) \sum_{n=1}^{\infty} \frac{(-10)^n}{n!}$$

$$9) \sum_{n=1}^{\infty} \frac{\sin \sqrt{n}}{\sqrt{n^3 + 4}} \qquad 10) \sum_{n=1}^{\infty} n \tan \frac{1}{n}$$

$$11) 1 + \frac{1 \cdot 3}{2!} + \frac{1 \cdot 3 \cdot 5}{3!} + \dots + \frac{1 \cdot 3 \cdot 5 \cdots (3n-2)}{n!} + \dots$$