

convergent or divergent. Justify your answer.

$$1 - \sum_{n=1}^{\infty} \frac{2}{n+e^n}$$

$$12 - \sum_{n=1}^{\infty} [\ln(2n-1) - \ln(5n+1)]$$

$$2 - \sum_{n=0}^{\infty} \frac{(-1)^n (n+1) 3^n}{2^{2n+1}}$$

$$13 - \sum_{n=1}^{\infty} \frac{n 3^n}{5^n}$$

$$3 - \sum_{n=0}^{\infty} \frac{\cos(n\pi) (n+12)^3}{n!}$$

$$14 - \sum_{n=1}^{\infty} (-1)^n \ln\left(1 + \frac{2}{n}\right)$$

$$4 - \sum_{n=4}^{\infty} \frac{4}{n-3}$$

$$15 - \sum_{n=1}^{\infty} \frac{1}{n\sqrt{n}}$$

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

$$16 - \sum_{n=1}^{\infty} (-1)^n \frac{n^2 2^n}{n!}$$

$$6 - \sum_{n=1}^{\infty} \frac{1}{n} \left(-\frac{1}{4}\right)^n$$

$$17 - \sum_{n=1}^{\infty} \frac{3^n - 2^n}{6^n}$$

$$7 - \sum_{n=1}^{\infty} \frac{\sin\left(n\frac{\pi}{2}\right)}{2n-1}$$

$$18 - \sum_{n=1}^{\infty} \frac{1}{n \ln(n^2)}$$

$$8 - \sum_{n=1}^{\infty} \frac{1}{n^2 + \cos(n)}$$

$$19 - \sum_{n=1}^{\infty} \frac{\sin^2 n}{n^2+1}$$

$$9 - \sum_{n=2}^{\infty} \frac{1}{n + e \cdot \sin(n)}$$

$$21 - \sum_{n=1}^{\infty} \left(1 - \frac{1}{n}\right)^{-n}$$

$$10 - \sum_{n=1}^{\infty} \frac{(\ln(n))}{n! 2^n}$$

$$22 - \sum_{n=1}^{\infty} \frac{n\sqrt{n}}{e^n}$$

$$11 - \sum_{n=1}^{\infty} \frac{\ln(n!)}{n!}$$

$$23 - \sum_{n=1}^{\infty} \frac{\cos n}{n^2 + \ln n}$$

$$24 - \sum_{n=1}^{\infty} \left(\ln(n) - \frac{1}{n}\right)$$

$$25 - \sum_{n=1}^{\infty} \frac{-\ln(n)}{n\sqrt{n}+5}$$

$$26 - \sum_{n=1}^{\infty} (-1)^n \frac{(n^2\sqrt{n} + n^2 \ln(n))}{2n^2\sqrt{n}+1}$$

$$27 - \sum_{n=1}^{\infty} (-1)^n \left(\frac{n+1}{n}\right)^n$$

$$28 - \sum_{n=1}^{\infty} (-1)^n \frac{n}{5^n}$$