

Determine if the following series are convergent or divergent. Clearly give your reasons.

1.
$$\sum_1^{\infty} \frac{n}{n^3 + 1}$$

2.
$$\sum_1^{\infty} \frac{n}{\sqrt{n^4 + 1}}$$

3.
$$\sum_1^{\infty} ne^{-n^2}$$

$$4. \sum_2^{\infty} \frac{1}{n \ln n}$$

$$5. \sum_1^{\infty} \sin n$$

$$6. \sum_1^{\infty} \frac{1 + 2^n}{5^n}$$