

2. Use the **Ratio Test** or the **Root Test** to determine whether each series converges or diverges.

(a)
$$\sum_{n=1}^{\infty} \frac{n^2 + 1}{n2^n}$$

(b)
$$\sum_{n=0}^{\infty} \frac{(-3)^n}{n!}$$

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

$$(d) \sum_{n=0}^{\infty} \left(\frac{2n^2}{3n^2 + n + 10} \right)^n$$

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

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

$$(g) \sum_{n=0}^{\infty} \left(\frac{4n^2}{2n^3 + 17} \right)^n$$