

Determine whether the series converges or diverges.

If a series converges, approximate its value accurate within 0.05

$$1. \sum_{k=1}^{\infty} (-1)^{k+1} \frac{3k^2}{7k^2 + k + 1}$$

$$4. \sum_{k=1}^{\infty} (-1)^{k+1} \frac{1}{2^k}$$

$$2. \sum_{k=1}^{\infty} (-1)^{k+1} \frac{1}{\sqrt[3]{k}}$$

$$5. \sum_{k=1}^{\infty} \frac{(k+1)!}{(k+2)!}$$

$$3. \sum_{k=5}^{\infty} \frac{1}{\sqrt[3]{k} + 1}$$

$$6. \sum_{k=5}^{\infty} (-1)^k \frac{k!}{(k+1)!}$$