

Determine if the series converges or diverges. If the series diverges give a reason why and if the series converges give its sum.

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

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

$$3. \sum_{n=0}^{\infty} \frac{\sqrt{n}}{\sqrt{n} + 4}$$

$$4. \sum_{n=0}^{\infty} \frac{5}{3^n}$$