HW 1.9: Series, root test

Apply the root test and state your conclusion about convergence.

1. \( \sum_{n=1}^{\infty} \left( \frac{n}{1+n} \right)^n \)
2. \( \sum_{n=1}^{\infty} \left( \frac{n}{1+n} \right)^n \)
3. \( \sum_{n=1}^{\infty} \left( \frac{2n+3}{4n-2} \right)^n \)
4. Why does the root test work well on the above series?