Nth term Test/Geometric Series/Telescopic Series Calculus of a Single Variable

Directions: Determine the convergence or divergence of the series

1. $\sum_{n=1}^{\infty} \frac{n+10}{10n+1}$

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

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

4. $\sum_{n=1}^{\infty} \frac{4}{2^n}$

5. $\sum_{n=1}^{\infty} \frac{1}{4^n}$

6. $\sum_{n=0}^{\infty} (1.075)^n$

7. $\sum_{n=1}^{\infty} \frac{2^n}{100}$

8. $\sum_{n=0}^{\infty} \frac{3}{2^n}$

9. $\sum_{n=0}^{\infty} 2^n$

10. $\sum_{n=0}^{\infty} \frac{n!}{2n!+1}$

11. $\sum_{n=0}^{\infty} \frac{1}{n}$

12. $\sum_{n=1}^{\infty} \frac{n^2}{5n^2+4}$

13. $\sum_{n=1}^{\infty} 5\left(\frac{2}{3}\right)^{n-1}$

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

15. $\sum_{n=1}^{\infty} \frac{2}{4n^2-1}$

16. $\sum_{n=1}^{\infty} \frac{1}{n(n+3)}$

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