

Math 122 - #22
Comparison and Limit Comparison Test

In the following problems, use the Comparison test or the Limit Comparison Test to determine if the series converges or diverges.

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

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

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

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

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

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

7. $\sum_{n=1}^{\infty} \frac{n+6}{n(n+5)}$

8. $\sum_{n=1}^{\infty} \frac{9n^2+4}{n^3-n}$

9. $\sum_{n=1}^{\infty} \frac{n}{8n^3+6n^2-7}$

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

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

Answers

1. Converges
2. Diverges
3. Diverges
4. Converges
5. Diverges
6. Diverges
7. Diverges
8. Diverges
9. Converges
10. Diverges
11. Diverges