

MATH 104 TUTORIAL 11

1. Use the Comparison Test to determine if each series converges or diverges.

$$\sum_{n=1}^{\infty} \frac{1}{n^2 + 30} \qquad \sum_{n=2}^{\infty} \frac{1}{\sqrt{n} - 1}$$

2. Use the Limit Comparison Test to determine if each series converges or diverges.

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

(Hint: Limit Comparison with $\sum_{n=1}^{\infty} (1/n^2)$)

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

(Hint: Limit Comparison with $\sum_{n=1}^{\infty} (1/\sqrt{n})$)

3. Use the Ratio Test to determine if each series converges or diverges.

$$\sum_{n=1}^{\infty} \frac{(n - 1)!}{(n + 1)^2} \qquad \sum_{n=1}^{\infty} \frac{n^2(n + 2)!}{n! 3^{2n}}$$

4. Use the Root Test to determine if each series converges or diverges.

$$\sum_{n=1}^{\infty} \left(\frac{4n + 3}{3n - 5} \right)^n \qquad \sum_{n=1}^{\infty} \sin^n \left(\frac{1}{\sqrt{n}} \right)$$