

Assignment 2

1. Use the Direct Comparison test to determine the convergence or divergence of the series.

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

2. Use the Limit Comparison test to determine the convergence or divergence of the series.

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

3. Determine the convergence or divergence of the series.

(a)

$$\sum_{n=1}^{\infty} \frac{(-1)^{n+1} \sqrt{n}}{\sqrt[3]{n}}$$

(b)

$$\sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!}$$

4. Use the Ratio Test to determine the convergence or divergence of the series.

$$\sum_{n=0}^{\infty} \frac{6^n}{(n+1)^3}$$

5. Use the Root Test to determine the convergence or divergence of the series.

$$\sum_{n=1}^{\infty} \frac{(n!)^n}{(n^n)^2}$$