

Section 11.6: Additional Problems

1. Determine if the series is absolute convergent, conditionally convergent, or divergent?

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

2. Determine if the series is absolute convergent, convergent, or divergent?

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

3. Determine if the series converges or diverges.

$$\sum_{n=1}^{\infty} \frac{\cos\left(\frac{n\pi}{3}\right)}{n^3 - 5}$$

4. The series $\sum a_n$ is defined recursively by $a_1 = 1$ and $a_{n+1} = \frac{(1 + \ln(n))a_n}{n}$ for $n \geq 1$. Determine if the series converges or diverges.

5. The series $\sum a_n$ is defined recursively by $a_1 = 3$ and $a_{n+1} = \frac{n}{n+1}a_n$ for $n \geq 1$. Determine if the series converges or diverges.

6. Determine if the series is absolute convergent, convergent, or divergent?

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