Chapter 9.4: More Testing for Convergence

Calculus II

Spring 2021

College of the Atlantic

1. Do the following converge? Why or why not?

$$\sum_{n=1}^{\infty} 2^{-n} \tag{1}$$

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

$$\sum_{k=0}^{\infty} \left(\frac{-1}{3}\right)^k \tag{3}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^n n^3}{n^2} \tag{4}$$

$$\sum_{n=0}^{\infty} 2^n \tag{5}$$

$$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}} \tag{6}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}} \tag{7}$$

$$\sum_{n=s}^{\infty} \frac{\ln(n)}{n} \tag{8}$$

2. Use the ratio test to see if the following sums converge:

$$\sum_{n=1}^{\infty} \frac{1}{n^2}\ , \tag{9}$$

$$\sum_{n=1}^{\infty} \frac{n^2}{2^n}\ . \tag{10}$$