

MATH 230  
11.5

Directions: Show all work on a separate sheet of paper for full credit.

1. Test the series for convergence or divergence.

(a)  $\frac{2}{3} - \frac{2}{5} + \frac{2}{7} - \frac{2}{9} + \frac{2}{11} - \dots$

(b)  $\frac{1}{\ln(3)} - \frac{1}{\ln(4)} + \frac{1}{\ln(5)} - \frac{1}{\ln(6)} + \frac{1}{\ln(7)} - \dots$

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

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

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

(f)  $\sum_{n=1}^{\infty} (-1)^{n+1} n e^{-n}$

2. How many terms of the series do we need to add together in order to find the sum to the indicated accuracy?

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^2 2^n} \text{ with } |\text{error}| < 0.0005$$

Find all the partial sums up to and including the partial sum that gives the indicated accuracy.