

EMT 121

Worksheet VIII - Series

May 5, 2010

1. For each of the following series, determine whether it converges or diverges.

(a) $\sum_{n=4}^{\infty} \frac{1}{n}$

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

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

(d) $\sum_{n=1}^{\infty} \frac{n^2}{n^2 + 10000}$

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

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

$$(g) \sum_{k=1}^{\infty} \frac{3}{5k}$$

$$(h) \sum_{k=1}^{\infty} \frac{k}{1+k^2}$$

$$(i) \sum_{k=3}^{\infty} \frac{\ln k}{k}$$

2. Find the sum of

$$(a) \sum_{n=1}^{\infty} \frac{1}{2^n} + \frac{1}{4^n}$$

$$(b) \sum_{n=1}^{\infty} \frac{1}{5^n} - \frac{1}{n(n+1)}$$