

Math 276 Discussion Worksheet 8

1. Determine the convergence or divergence of the following improper integrals.

a. $\int_0^{\infty} \frac{x}{1+x^2} dx$

b. $\int_0^1 \log x dx$

2. Determine the radius of convergence of the following power series.

a. $\sum_{n=1}^{\infty} n!x^n$

b. $\sum_{n=0}^{\infty} x^{2^n}$

3. Determine the set of all x for which the power series converges.

a. $\sum_{n=1}^{\infty} x^n$

b. $\sum_{n=1}^{\infty} \frac{x^n}{n}$

c. $\sum_{n=1}^{\infty} \frac{x^n}{n^2}$