

Simon Joyce MT222-Section 04: Assignment 7

Solutions to be submitted in lecture Friday 04/03/09. Your solutions to each question should be neatly written up on a separate piece of paper and your solutions stapled or clipped together.

Find the radius and interval of convergence of the following power series.

1.
$$\sum_{n=0}^{\infty} \frac{x^n}{n(n+1)}$$

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

3.
$$\sum_{n=0}^{\infty} \frac{2^n(x-2)^n}{(n+2)!}$$

4. Given $f(x) = \frac{4}{4+x^2}$. Find a power series representation for $f(x)$ and determine the interval of convergence.

5. Given $f(x) = \frac{x^2}{(1-x)^2}$. Find a power series representation for $f(x)$ and determine the radius of convergence.