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# Assignment 10

MA06 Complex Analysis

Deadline: 17:00, Monday, Jan 29, 2024

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1. Find the circle and radius of convergence of the given power series.

(a)  $\sum_{n=0}^{\infty} \frac{1}{(1-2i)^{n+1}} (z-2i)^n$

(b)  $\sum_{n=0}^{\infty} (1+3i)^n (z-i)^n$

2. Expand the given function in a Maclaurin series. Give the radius of convergence  $R$  of each series.

(a)  $f(z) = \frac{z}{1+z}$

(b)  $f(z) = e^{-2z}$

3. Expand the given function in a Taylor series centered at the indicated point  $z_0$ . Give the radius of convergence  $R$  of each series.

(a)  $f(z) = \frac{1}{z}$ ,  $z_0 = 1$

(b)  $f(z) = \frac{1}{3-z}$ ,  $z_0 = 2i$

Notice:

Please write your Email title as "A{Assignment Number}-{Your Student ID}-{Your Name}".