

Introduction to complex analysis

Tuesday exam

1. (8 p) Give a Möbius transformation which

circle $|z| = 1$.

2. (8 p) Compute the integral

$$\int_C \frac{e^z}{z^2(z-1)^2}$$

when $C = \{z : |z| = 6\}$.

3. Study the series $\sum_{j=1}^{\infty} (j-1) \left(\frac{2z+3i}{5}\right)^{2j}$.

(a) (4 p) For which z does the series converge?

(b) (4 p) Compute the sum of the series.