Lecture Notes For: The Complex Analysis and Applications

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The content of this lecture note will be mostly based on the course MATH 305 (Applied Complex Analysis) at UBC during Winter2, 2023 term. However, I have expanded the content and examples using the following text books as well:

- Fundamentals of Complex Analysis for Mathematics, Science and Engineering,(Third Edition) by E. Saff, A. Snider.
- Visual Complex Functions: An Introduction with Phase Portraits by Elias Wegert

1 Foundamentals

TO BE COMPLETED:

- The intuition behind the complex variables (from visual complex analysis book)

2 Complex Maps

2.1 Linear Map

2.2 Inverse Map

2.3 Mobius Map

2.4 Quadratic Map

2.5 Exponential Map

3 Calculus for Complex variables

3.1 Limit

3.2 Continuity

3.3 Differentiability