

MTH 317/617

Homework #5

Due Date: October 12, 2022

1 Problems for Everyone

1. Determine the domain of analyticity for the function

$$f(z) = \text{Log}(z^2 + i)$$

and sketch the branch cuts on the complex plane.

2. Find the principal value of the following

(a) $4^{1/2}$

(b) i^{2i}

(c) $(1 + i)^{(1+i)}$.

3. Find all solutions for $z \in \mathbb{C}$ to the equation

$$\sin(z) = \cos(z).$$