

## HW #04

Due: 02/13/2019

1. Obtain the first non-zero 3 terms of the Taylor series and state the convergence range for

$$f(z) = \frac{z}{1-z} \quad \text{about } z = -1.$$

2. Explain

$$1 - 1 + 1 - 1 + 1 - 1 + \dots = \frac{1}{2}$$

using analytic continuation.

3. Prove that

$$\sin(2(x + iy)) = 2 \sin(x + iy) \cos(x + iy).$$