

1. Arfken Chapter 6 : 1.10(a), 1.15(a)and (d), 2.1(a), 2.2, 2.3, 2.8, 7.1(a), 7.3(a)
2. Define a cut in the complex z plane to make $z^{1/3}$ single valued. Evaluate $Arg[(-i)^{1/3}]$.
3. Define cuts in the complex z plane to make the function

$$f(z) = \ln(z^2 - 1)$$

single valued. Find $Im(f)$ above and below your cut. Is your answer unique?