

Arfken, Weber, Harris, 7th Ed

Chapter 11:

4.3

4.6

5.1 (about $z=0$; define any branch cuts and radius of convergence),

5.2 (discuss separately the cases of non-integer m , and positive or negative integer m . In each case, state how you determined the radius of convergence)

5.6

5.7 (first several terms)

Other

3.1. Evaluate the following integral using two different techniques.

$$\int_C dz (z^2 - 1)^{-1/2}$$

where the C is a closed contour which encloses both singularities. A branch cut along the real axis extends from -1 to $+1$. For the 1st method, stretch out the contour to infinity and then evaluate. For the 2nd method, shrink the contour so it completely hugs the branch cut, and evaluate, keeping track of the phases. Note that the integral converges as $z \rightarrow +1$ or -1 .