Needham, Chapter 8, Exercise 11, p. 421.
G. Palmer, July 8, 2017, 3:30 pm PST

11 The perfect symmetry of figure [18] (see notes for Ch. 8) results from integration round the unit circle. Roughly how would this figure look if we instead used a somewhat larger circle.

Out[472]=

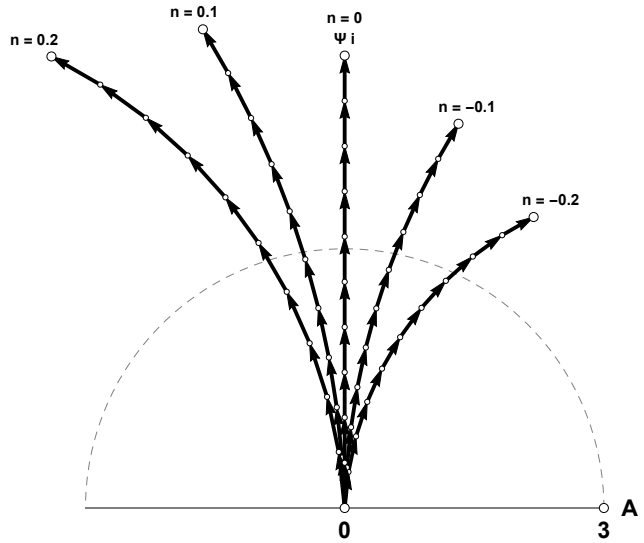

Figure 1. $\int$ on powers with A = 3.

If a power function is applied to a larger circle than the unit circle, the effect is to create asymmetry. In Figure 1, the arrows represent $\tilde{\Delta}$'s and A = 3. Note that n = (m+1). In general, $\tilde{\Delta} = A^{m+1}\phi$, which means that with greater values of A, $|\tilde{\Delta}|$ increases by the power (m+1) under increasing m, m > -1 (left side of figure), and $|\tilde{\Delta}|$ decreases by the power of (m+1) under decreasing negative m, m < -1 (right side of figure). An important effect is to increase or decrease $| R_M |$ accordingly. The turning angle, $\tilde{\phi}$ =(m+1)ϕ, is unaffected by the value of A.