Real Variable Power: Implement of the high-level programing function
关于高级编程语言对实变幂函数的实现

Given the power function definition in real number field
给定幂函数实数域定义

$$f(x) = x^a; (x, a \in R) \tag{1}$$

and there will be 3 conditions for calculating the result.
并且会有 3 种计算结果

$$f(x) = \begin{cases} 0 & x = 0 \\ e^{a\ln x} & x > 0 \\ |x|^a e^{i(2k+1)\pi a} & x < 0 \end{cases} \tag{2}$$

With the definition of Euler Equation
根据尤拉公式的定义

$$e^{ix} = \cos x + i\sin x \tag{3}$$

then the condition equation of ($x < 0$) can be
($x < 0$)情况的等式为

$$|x|^a e^{i(2k+1)\pi a} = |x|^a(\cos T + i\sin T) \tag{4}$$

$$T = (2k + 1)\,\pi a \tag{5}$$

The answer can be calculated by using the Taylor Series.
结果可以通过泰勒级数计算。