

计算物理 HW3 Problem1

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题目 1: 数值积分

解答: (1) 梯形法则

When the number of grid points is 10, the integral's numerical result is 2.023343

When the number of grid points is 100, the integral's numerical result is 0.274735

When the number of grid points is 1000, the integral's numerical result is 0.219985

(2) 辛普森法则

When the number of grid points is 10, the integral's numerical result is 0.676144

When the number of grid points is 100, the integral's numerical result is 0.220757

When the number of grid points is 1000, the integral's numerical result is 0.219384

(3) Gauss-Legendre 方法

When the number of grid points is 10, the integral's numerical result is 0.146045

When the number of grid points is 100, the integral's numerical result is 0.219384