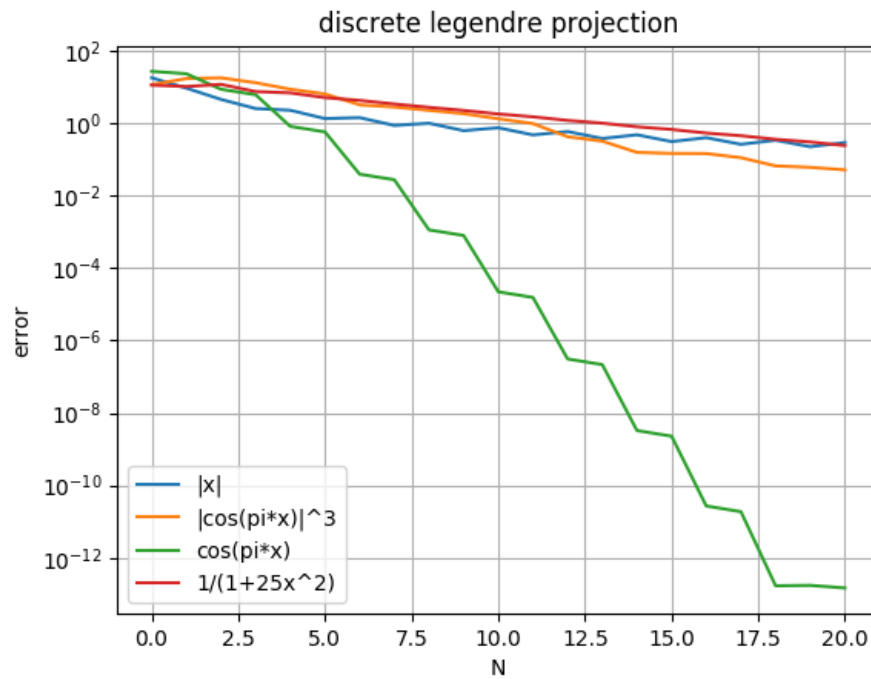


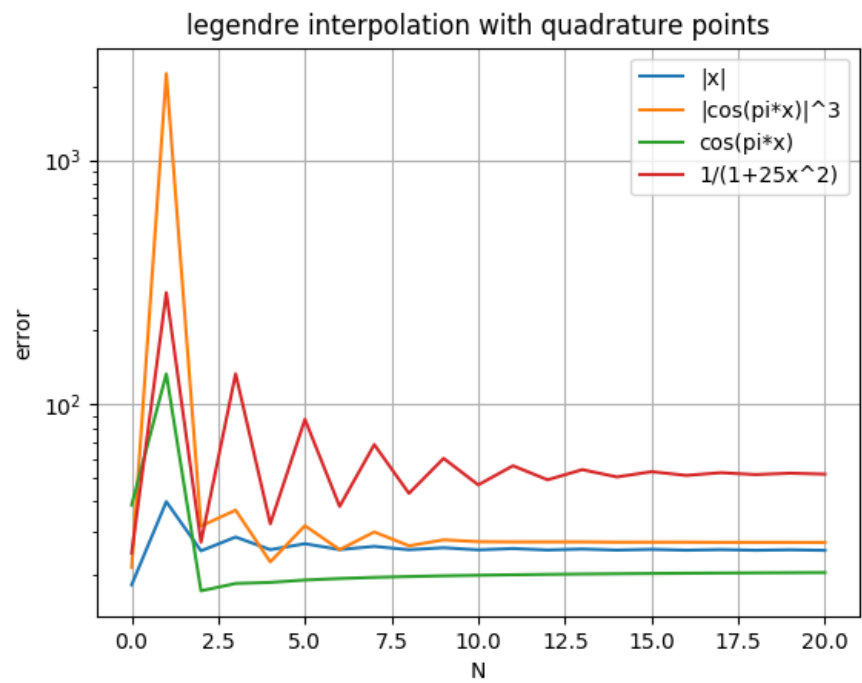
MATH:7830 Homework 3

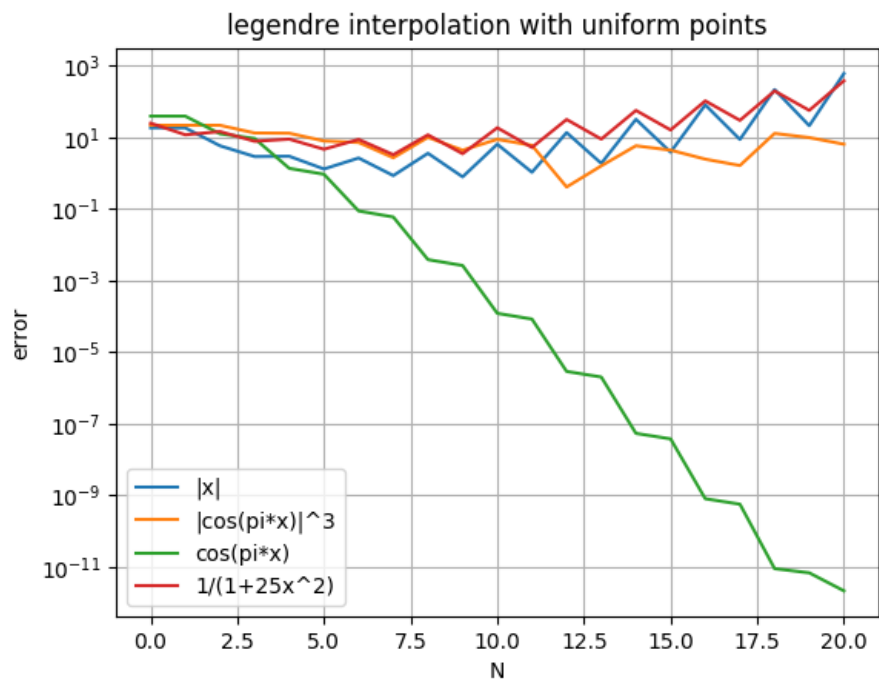
Chuan Lu

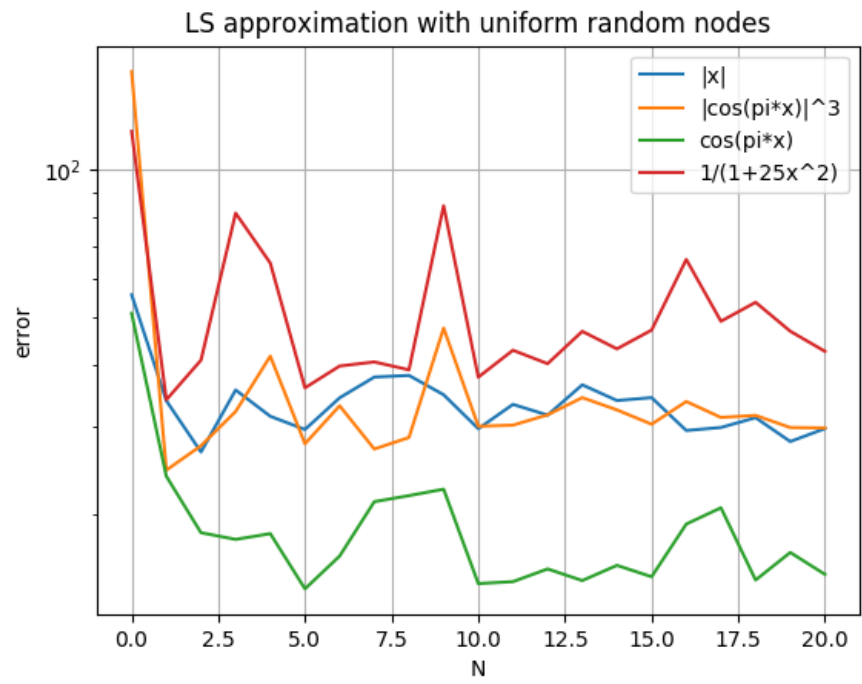
March 24, 2019

The approximation error of $|\sin(\pi x)|$, $|x|$, $\cos(\pi x)$ with Legendre polynomials of degree up to 20 are shown in the following graphs:









LS approximation with uniform random nodes and monomial basis

