FALL 2019 QUIZ 4

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The problems that follow illustrate the methods covered in class. They are typical of the types of problems that will be on the tests.

Problem 1. Determine the points and weights to be used to estimate the integral $\int_{-1}^{1} f(x)dx$ using Gaussian quadrature with $n = 10$.

Problem 2. What are the Legendre polynomials up to degree $n = 8$?

Problem 3. Estimate the integral $\int_{-4}^{4} 1/(1+x^2)dx$ using Gaussian quadrature with $n = 8$ and with $n = 15$.

Problem 4. Estimate the integral $\int_{0}^{\pi} \sin(x)dx$ using Gaussian quadrature with $n = 8$ and with $n = 15$.

Problem 5. In using Gaussian quadrature to estimate the integral $\int_{a}^{b} f(x)dx$ what is the error of the estimate. Explain.