

Math417, Sample integration problem

Name:

SHOW ALL WORK!

Problem 1. Find the constants x_1 , c_1 and c_2 so that the quadrature formula

$$\int_0^3 f(x) dx = c_1 f(0) + c_2 f(x_2)$$

has the highest possible degree of accuracy. What is the degree of accuracy of that rule?

Problem 2. Find the constants x_1 , x_2 , c_1 and c_2 so that the quadrature formula

$$\int_{-3}^3 f(x) dx = c_1 f(x_1) + c_2 f(x_2)$$

has the highest possible degree of accuracy. What is the degree of accuracy of that rule?

Problem 3. Find the constants c_1 and c_2 and the degree of accuracy of the quadrature formula

$$\int_{-3}^3 f(x) dx = c_1 f(-1) + c_2 f(1).$$