

Assignment 2

Pseudo Code :-

Gradient (coeffp, m, iterations, point)

convert 1D coeff array to 3D coeff array

for iter=1 to iterations

for $x_1=0$ to m

for $x_2=0$ to m

for $x_3=0$ to m

if($x_1 > 1$)

grad_coeff[x_1-2][x_2][x_3] += coeffp[x_1][x_2][x_3]* x_1 * x_1-1

if($x_2 > 1$)

grad_coeff[x_1][x_2-2][x_3] += coeffp[x_1][x_2][x_3]* x_2 * x_2-1

if($x_3 > 1$)

grad_coeff[x_1][x_2][x_3-2] += coeffp[x_1][x_2][x_3]* x_3 * x_3-1

end for

end for

end for

end for

for $x_1=0$ to m

for $x_2=0$ to m

for $x_3=0$ to m

grad_value += grad_coeff[x_1][x_2][x_3] * $x[0]^{x_1}$ * $x[1]^{x_2}$ * $x[2]^{x_3}$

end for

end for

end for

return grad_value

end function

Compute-Q (m, coeffp, point)

q_x = 0

for k = 0 to m/2

q(x) += ((-1)^k |x|^{2k} Gradient(coeffp, m, k, point))/((2,2)_{k+1} * (n+2m-2k)_{k+1})

end for

Initial call :- Compute-Q(m, coeffp, point)