xpts =

-3.0000

0

0.3333

1.0000

4.0000

The derivative u^(2) of u at xb = 0.5 is approximated by

-5.952380952380953e-03 * u(x(1)) +

6.166666666666667e+00 * u(x(2)) +

-9.204545454545451e+00 * u(x(3)) +

3.041666666666666e+00 * u(x(4)) +

2.164502164502167e-03 * u(x(5)) +

Actual Error = 0.000158771

For smooth u,

Estimated Error = -0.0347222 *u^(5)(0.5) + (-0.00947145) *u^(6)(0.5) + ...