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>> MainFDnonuniformNew
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Exercise 1.5 (d) (i)

 The grid consists of the points

 x(1) = 0.4
 x(2) = 0.5
 x(3) = 0.6

 xb = 0.5

 Finite difference stencil of the second derivative of an arbitrary
 smooth function u at x = xb based on the above grid points

(100) * u(x(1)) + (-200) * u(x(2)) + (100) * u(x(3))

Leading order error terms for smooth u at xb = 0.5 using n = 3 points

    LTE = 0 *u^(n)(xb) + (1/1200) *u^(n+1)(xb) + ...

 Application of the above finite difference to approximate
 the derivative u^(2) of the input function u = e^(x/3) at xb = 0.5
 based on the grid "xpts":

   Approximation of u^(2)(0.5) = 0.131274

   Exact value of u^(2)(0.5) = 0.131262

   Actual Error = 1.21544e-05

   Estimated Error = 1.21539e-05

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