

**(1)** [Problem 5.6 Page 74]

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**(2)** What does

$$\frac{1}{4}[\partial_1\partial_2 + \bar{\partial}_1\bar{\partial}_2 + \partial_1\bar{\partial}_2 + \bar{\partial}_1\partial_2]U_{i,j}$$

means is terms of a difference stencil. Show that this is  $o(h^2)$  accurate on a uniform mesh  $h$ .

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**(3)** consider [Problem 5.18 Page 76]

- a) Use PDETOOL to solve the problem
  - b) Use fem\_2d.rar to solve the problem
  - c) Compare the result at part (a) with part (b)
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**(4)** consider [Problem 4.5 Page 49]

[Hint: use fdm.m code to create the discrete laplacian matrix]

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