

Global Exercise - Gue10

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Content covered:

✓ Programming exercise 02: Explanation.

✓ Analysis:

* Distributional derivative.

✓ Numerics:

1 Programming exercise 02: Explanation

Example 1. *Examine the following Convection-diffusion problem*

$$\begin{aligned} -\varepsilon \Delta u(x, y) + \cos \beta \frac{\partial u}{\partial x}(x, y) + \sin \beta \frac{\partial u}{\partial y} &= f(x, y), \quad (x, y) \in \Omega = (0, 1)^2, \\ u(x, y) &= g(x, y), \quad (x, y) \text{ on } \partial\Omega, \end{aligned}$$