

MATB42: Assignment #8

1. (a) Let  $f, g : \mathbb{R}^n \rightarrow \mathbb{R}$ ;  $\mathbf{F}, \mathbf{G} : \mathbb{R}^n \rightarrow \mathbb{R}$ ; and define  $\Delta$ , the *Laplacian*, by  $\Delta f = \sum_{i=1}^n \frac{\partial^2 f}{\partial x_i^2}$ .

Verify the following identities

- i.  $\div$