16.39 [1FX] Check that the following partial derivatives exist, and compute them:

$$\frac{\partial}{\partial x}\Big(4xy + 3x^2y - zy^2\Big) \ , \ \ \frac{\partial}{\partial y}\Big(4xy + 3x^2y - zy^2\Big)$$

$$\frac{\partial}{\partial x}\frac{ze^{x+|y|}}{1 + x^2|y|} \ , \ \ \frac{\partial}{\partial z}\frac{ze^{x+|y|}}{1 + x^2|y|}$$

Solution 1. [1FY]