

Curl and Divergence

1. For the vector field $\mathbf{F}(x, y, z) = (2x)\mathbf{i} + (z \cos yz)\mathbf{j} + (y \cos yz)\mathbf{j}$:
 - (a) Calculate $\operatorname{div}(\mathbf{F})$.
 - (b) Calculate $\operatorname{curl}(\mathbf{F})$. Is \mathbf{F} conservative?
 - (c) Find f such that $\nabla f = \mathbf{F}$.