

Show all work. 10points.

1) Let $\mathbf{F}(x, y, z) = \langle 2xyz, x^2z + 2yz^2, x^2y + 2y^2z \rangle$.

a) (7pts) Show $\text{curl}(\mathbf{F}) = \mathbf{0}$ and find f so that $\nabla f = \mathbf{F}$

b) (3pts) Find $\text{div}(\mathbf{F})$.