F14. $\phi_1(x, y)$ and $\phi_2(x, y)$ are known to be physically-possible flows (i.e. satisfy mass conservation), and their corresponding pressure fields $p_1(x, y)$ and $p_2(x, y)$ are known via the Bernoulli equation.

a) A third flow is now defined by $\phi_3(x, y) = \phi_1 + \phi_2$. Explain how you would obtain its corresponding pressure field p_3.

b) Yet another flow $\phi_4 = \partial\phi_1/\partial x$ is defined. Is this a physically-possible flow?