a) \( u = \frac{C y}{y} \quad v = 0 \)

\[ \xi_z = \frac{\partial v}{\partial x} - \frac{\partial u}{\partial y} = -C \quad \xi_2 \quad C \cdot \xi_2 \]

or, \( \omega_z = \frac{1}{2} \xi_z = -\frac{1}{2} C \)

\[ \varepsilon_{xy} = \frac{1}{2} \left( \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x} \right) = \frac{1}{2} C \]

b) Simple shearing motion, which is a 50-50 combination of rotation and shear.

\[ \frac{\partial u}{\partial y} = -\frac{1}{2} \left( \frac{\partial v}{\partial x} - \frac{\partial u}{\partial y} \right) + \frac{1}{2} \left( \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x} \right) \]

\[ C = -\left( -\frac{1}{2} C \right) + \frac{1}{2} C \]