Consider the following “corner” flow (same as in problem F1.2).

\[ u = y \quad v = x \]

a) Determine the velocity potential \( \phi(x, y) \) of this flow.

b) Determine the stream function \( \psi(x, y) \) of this flow.

c) Determine the mass flow passing through the dotted line shown, extending from \((1,0)\) to \((0,1)\). Assume a unit density \( \rho = 1 \).