1. Consider the second-order system

\[ \begin{align*}
\dot{x}_1 &= -x_1 - x_2 + \psi(x_2) \\
\dot{x}_2 &= x_1 + \psi(x_2) + u \\
y &= x_2
\end{align*} \]

where \( \psi \) is a continuously differentiable function such that \( \psi(0) = 0 \), \( \psi'(0) = 1 \), and \( 0 < \psi'(x_2) < 1 \) for all \( x_2 \neq 0 \).

(a) Is the system input-output linearizable?
(b) Is it minimum phase?
(c) Is it feedback linearizable?