

Example (2)

Example

Consider the following CT system with input $x(t)$ and output $y(t)$

$$y(t) = x(\sin(t)).$$

- Prove that it is linear or give a counter example.
- Prove that it is time-invariant or give a counter example.
- Determine whether it is causal or noncausal.
- Determine if it is a memoryless or memory system.