EECS20n, Quiz 2

The quiz is to provide feedback to you and to me about how well you've followed the material so far. The quiz will take 15 minutes. Write your reponse on the sheet.

Please print your name and lab time here:

Last Name _____ First _____ Lab time _____

1. Let $f: Reals^2 \rightarrow Reals^2$ be a function where $\forall\, (x_1, x_2) \in Reals^2$,

$$f(x_1, x_2) = (y_1, y_2)$$

   where

$$\left[\begin{array}{c} y_1 \\ y_2 \end{array} \right] = \left[\begin{array}{cc} 0 & 1 \\ 0 & 0 \end{array} \right] \left[\begin{array}{c} x_1 \\ x_2 \end{array} \right].$$

   Please indicate whether the following statements are true or false. There will be no partial credit, so please consider your answer carefully.

   (a) f is onto.

   (b) f is one-to-one

   (c) f is linear

2. Consider a SISO system with

$$A = \left[\begin{array}{cc} 0 & 1 \\ 0 & 0 \end{array} \right] \quad b = \left[\begin{array}{c} 0 \\ 1 \end{array} \right] \quad c = \left[\begin{array}{c} 0 \\ 1 \end{array} \right] \quad d = 0.$$

   Find the zero-state impulse response.