Name: \_\_\_\_\_

Date:

## Quiz 3:

## Problem 1:

Are the following true or false?

Question	True	False
Linear state equations can be used to model dynamic systems		
The function $y = \frac{1}{n}$ is a linear system operator		
State space models cannot be derived from block diagrams		
Nonlinear system operators cannot be represented as transfer functions		
In a set-point, the time-derivative of any signal is 0		

## Problem 2:

We are given the following nonlinear system

$$\dot{x} = 3\sin(x) + 4u$$
$$y = 3(x - 1)$$

Assume that the set-point value of the state is  $x_{SP} = 0$ . Compute the linearization of the nonlinear system around that set-point.