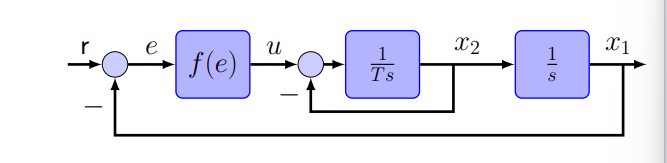
HW\_3

1. Check the following functions whether positive definite or not
2. Exercises 3.2
3. Exercises 3.3
4. Exercises 3.4
5. Consider the following feedback system



The state space model is

where

Choose a Lyapunov candidate as

1. Is it stable?
2. If r = step function, plot the

3.1) when

3.2) when

3.3) when