ME 530.676: System Identification Problem Set 1

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Due: Friday, 7 Feb 2014

1. Exercises 2.1 on pp 76 of Khalil.

2. Exercises 2.6 on pp 79 of Khalil.

3. Exercises 2.18 on pp 82 of Khalil.

4. Exercises 2.27, systems (1) and (6) on pp 84 of Khalil.

5. Exercises 2.30 on pp 85-86 of Khalil.

6. Construct the matrix M for a planar system with complex conjugate Eigenvalues in order to put the system in real Jordan form.

7. Consider the system
$$\dot{x} = Ax \tag{1}$$

where A is a symmetric matrix. Characterize the possible equilibrium points of the system (saddle, node, center, focus, etc).