

Math 416 HW #7
due Monday, 4/14

- 1: Friedberg–Insel–Spence, §6.2 #18.
- 2: Friedberg–Insel–Spence, §6.3 #23.
- 3: Friedberg–Insel–Spence, §6.4 #17 (a)(b)(c)(e). Hint for part (e): Use Simultaneous Diagonalization.
- 4: Friedberg–Insel–Spence, §6.4 #10.
- 5: Let $\mathbf{A} \in M_{n \times n}(\mathbb{C})$ be a Hermitian matrix.
 - (a) Prove that $\mathbf{B} = \exp(i\mathbf{A})$ is unitary.
 - (b) Prove that $\mathbf{C} = (\mathbf{A} + iI_n)(\mathbf{A} - iI_n)^{-1}$ is unitary.