1) Do Exercises 1.7.47, 4.1.11, 4.1.12, 4.2.3, 5.2.14c, 5.2.17, 5.2.20, 5.3.13, 5.3.14

2) Let $Q$ be an orthogonal matrix with eigenvalue $\lambda$. Prove that $\lambda \bar{\lambda} = 1$, where $\bar{\lambda}$ is the complex conjugate of $\lambda$.

3) Let $A$ be a symmetric matrix. Prove that the eigenvalues of $A$ and the singular values of $A$ are the same.