Homework #2

Problem 1

Suppose $x \in \mathbb{C}^m$ and $y \in \mathbb{C}^n$ are arbitrary vectors (columns) and $A \in \mathbb{C}^{m \times n}$ is arbitrary vectors. Using properties of matrix multiplication show that for a standard inner product $< ., . >$

$$< x, Ay > = < A^* x, y > .$$

This is a very useful fact; in particular, this is a hint to problems 2.3 and 2.6 below.

Problems from the textbook

Problems 2.1, 2.3, 2.4, 2.5, and 2.6, pages 15-16.