Due: upload to Gradescope by Friday 15 November 2019 at 3pm.

Reading: Chapter 5.2 from the textbook.

Grading: 1 point per exercise for completeness. The exercises marked with a ($\star$) will also be graded for correctness, and will be assigned an additional 3 points each.

Submit your written solutions to the following questions from the textbook:

Chapter 5.1:
Ex. 17($\star$)
Ex. 19

Chapter 5.2:
Ex. 1
Ex. 10($\star$)
Ex. 16
Ex. 29
Ex. 32
Ex. 33($\star$)
Ex. 36
Ex. 38($\star$)
Ex. 39($\star$)

Submit your written solution to the following exercise:

Q1: The goal of this exercise is to show that similarity of matrices is an equivalence relation. Show that for any $n \times n$ matrices A and B we have:

(i) A is similar to A (reflexivity)

(ii) If A is similar to B then B is similar to A (symmetry)

(iii) If A is similar to B and B is similar to C then A is similar to C (transitivity).

Optional exercise: (You don't need to hand in solutions to this exercise) Show that for any subspace V of $\mathbb{R}^n$ we have $\left(V^\perp\right)^\perp = V$.