# MAT140B WINTER 2024: PROBLEM SET 3

**Due:** F 02/04/2024, by midnight

**Directions:** You can collaborate, but must write up the solutions independently and in a good handwriting. **Consulting solutions to problem sets of previous semesters or internet solutions is not allowed.**

**Problem 1.** Chapter 6: 1, 2, 4.

**Problem 2.** Chapter 6: 5, 6.

**Problem 3.** Chapter 6: 7, 8.

**Problem 4.** Chapter 6: 11, 12.

*In Problem 11 you have to prove the Schwarz inequality, that is $\int |u|\,|v|\,d\alpha \leq \|u\|_2\,\|v\|_2$. This is an easier version of Exercise 10.*