Exercises for Week 9

The work handed in should be entirely your own. You can consult the textbook and/or the class notes but nothing else. To receive full credit, justify your answer in a clear and logical way. Due Nov. 11.

Reading. Read Sections 3.4, 4.1 of the textbook carefully.

1. Section 3.4 Exercise 1, 2 (a) (d) (e), 3, 5, 10, 15.

2. Prove the following statement:

   Theorem 1. *Let A be an $n \times n$ matrix over a field F, and $\mathbf{x}$ a column of n variables. Let $\mathbf{b}$ be a column of n fixed numbers in $\mathbb{F}$. Then the system of equations $A\mathbf{x} = \mathbf{b}$ has a unique solution if and only if A is an invertible matrix.*

3. Section 4.1 Exercise 1, 3 (b) (c), 5, 6, 7, 10.