MA 351 Fall 2021 (Aaron N. K. Yip)
Homework 3
Due: Thursday, Sept. 16, in class

Penney, Linear Algebra: Ideas and Applications (4th edition)
p. 17: 3, 5, 10, 13, 14, 26;
p. 73: 90, 91.

Additional Problems:

#1. For the following systems (given by the augmented matrices), determine the values of a, b, c such that the systems have a (i) unique solution, (ii) infinitely many solutions, and (iii) no solution.

$$\left(\begin{array}{ccc|c} 1 & 1 & 3 & 2 \\ 1 & 2 & 4 & 3 \\ 1 & 3 & a & b \end{array}\right), \quad \left(\begin{array}{ccc|c} 1 & 1 & 1 & 2 \\ 1 & 2 & 1 & 3 \\ 1 & 1 & c^2-5 & c \end{array}\right),$$

For cases (i) and (ii), find the solutions explicitly.

#2. Find the polynomial of degree 4 whose graph goes through the points $(1,1)$, $(2,-1)$, $(3,-59)$, $(-1,5)$, and $(-2,-29)$.