Read Artin, Chapter 1, sections 3-5.

From Artin, do these problems:
- Section 1.2 (pp.33-34): 13, 14. [You might want to do #14 first.]
- Section 1.3 (pp.34-35): 1(c,e), 5, 8.
- Section 1.4 (pp.35): 2, 4.
- Section 1.5 (pp.36): 2 (just the second matrix), 3.

Also do the following problems:

1. Let \( A = \begin{pmatrix} 1 & 1 & 1 \\ 1 & -1 & 0 \\ 0 & 1 & c \end{pmatrix} \), where \( c \) is a real number.
   a) Find \( A^{-1} \) using row reduction.
   b) Using part (a), determine for which real numbers \( c \) there is no inverse for \( A \).
   c) Compute the determinant of \( A \).
   d) Using part (c), determine for which real numbers \( c \) there is no inverse for \( A \). Verify that this agrees with your answer to (b).

2. Let \( A \) be a \( 3 \times 2 \) matrix and let \( B \) be a \( 2 \times 3 \) matrix.
   a) Find the determinant of \( AB \). [Hint: What is the row echelon form of \( A \)? of \( AB \)?]
   b) What can you say, if anything, about the determinant of \( BA \)?