

## Assignment 3

Due Monday at 11:00 am and in class

**Remarks:** I may not grade all assignments, and Not all questions/parts will be graded on the graded assignment. You're welcome to ask me for help. Show your work and explain every step.

- (1) Section 3.2: 1 (c,h).
- (2) Section 3.3: 1 (e,f,j,k,l), 7, 9(a,b).
- (3) Section 3.4: 1(a,c,f,h), 4(c,d), 6(c,d,e).
- (4) Chapter Problems: 12, 16.
- (5) Let

$$A = \begin{bmatrix} 4 & 5 & 6 \\ 7 & 3 & 2 \\ 8 & 2 & 5 \end{bmatrix}.$$

Find  $\det(A)$ ,  $\det(A^T)$ ,  $\det(A^{-1})$ , and  $\det(A^8)$ .

- (6) Let  $A = \begin{bmatrix} 4 & -5 \\ 7 & 3 \end{bmatrix}$ . Find  $\det(A)$ .
- (7) Let  $A$  be an  $n \times n$  matrix such that  $A^K = I$  for some positive integer  $K$ . Prove that  $A$  is invertible. What is  $A^{-1}$ ?
- (8) Let  $A$  be an  $n \times n$  matrix such that  $A^2 = A$ . What is  $\det(A)$ ?
- (9) Let  $A$  be a nonsingular  $n \times n$  matrix such that  $A^2 = A$ . What is  $A$ ?