1 Chapter 1: Matrices and Systems of Equations

1.4 Matrix Algebra

1. algebraic rules p 44

2. $AB \neq BA$, i.e. multiplication of matrices is not commutative

3. $A^3 = A \cdot A \cdot A$ and so $A^k = \underbrace{A \cdot A \cdot \ldots \cdot A}_k$

4. nonsingular matrix (or invertible matrix): if the matrix has an inverse

5. singular matrix: if it is not invertible

6. transpose of a matrix $A^T$ (swap the columns with the rows) and the algebraic rules for the transposes

7. symmetric matrices: if $A^T = A$

8. identity matrix $I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

9. algebraic rules for transposes p 52