Note: These problems are designed for practice during a 50 minute recitation.

1. **Easy** problems: expected to be solved in *5 min*.
2. **Medium** problems: expected to be solved in *30 min*.
3. **Hard** problems: expected to be solved in *15 min*.

During the recitation, you may discuss the problems with your peers and the TA. Please control your volume and don’t annoy others. An electronic copy of these problems and solutions will be posted on the following URL: <http://cs.utsa.edu/~btang/pages/teaching.html>.

**Questions**:

1. (Easy, 2 min) Let . (Textbook [KR] Page 254: 1d & e)
   1. What is the element of A in the (3, 2)th position?
   2. What is At?
2. (Easy, 3 min) Find A + B, where (Textbook [KR] Page 254: 2a)
3. (Medium, 5 min)If , find AB.(Textbook [KR] Page 255: 3a)
4. (Medium, 10 min) Show that if A is a matrix such that AB = BA whenever B is a matrix, then , where c is a real number and I is the identity matrix.   
    matrix is called **upper triangular** if whenever . (Textbook [KR] Page 260: 43)
5. (Medium, 15 min) What is the most efficient way to multiply the matrices , , , and if the dimensions of these matrices are , and , respectively? (Textbook [KR] Page 256: 25)
6. (Hard, 15 min) Let A be the matrix: . Show that if , then: . (Textbook [KR] Page 256: 19)