

18.06 Problem Set 2

Due Wednesday, 17 September 2008 at 4 pm in 2-106.

Problem 1: Do problem 28 from section 2.4 in the book.

Problem 2: Do problem 32 from section 2.4.

Problem 3: Do problem 30 from section 2.5.

Problem 4: Do problem 38 from section 2.5.

Problem 5: Do problem 16 from section 2.6.

Problem 6: Do problem 9 in section 2.7.

Problem 7: Do problem 16 in section 2.7 (be sure to give complete reasoning for your answers).

Problem 8: Do Problem 31 in section 2.7.

Problem 9: This problem asks you to investigate the computation time of basic matrix operations. Take $n = 250$. Have your favorite program generate a random $n \times n$ matrix A and a random $n \times 1$ column vector b . Compare the times for inverting A , LU factorization of A , Solving $Ax = b$ and multiplying $A * A$. Then see what happens for $n = 500, 1000$, and keep doubling as long as you can.