

MATH 464, HW 4

1) Implement in Matlab the  $64 \times 64$  DFT algorithm. Apply it to the following vectors:  $v_1(k) = \sin(2\pi k/64), k = 0, \dots, 63$ ,  $v_2(k) = \sin(4\pi k/64), k = 0, \dots, 63$ ,  $v_3(k) = \cos(2\pi k/64), k = 0, \dots, 63$ . Plot the results in form of a function graph. Draw conclusions.

2) Analyze the speed of your implementation of DFT as a function of the length of the input vector.