

Math 22 Lin Alg: Homework 2

due Wed Jul 5 . . . but best if do relevant questions after each lecture

Required problems from David Lay book: (remember to show your working/reasoning—answers without explanation will not receive a high score!) You may want to warm up with the practise problems, or odd problems nearest the assigned ones.

1.4: Goals: Be able to write a vector equation as a matrix equation; determine whether a matrix equation is consistent and list equivalent conditions; know basic properties of matrix-vector products.

4, 10, 14, 15, 24.

1.5: Goals: Find solution sets to homogeneous systems of linear equations and relate to nonhomogeneous linear systems; write solution sets in parametric vector form.

6, 16, 24.

1.6: Goals: (Ignore first two examples). Be able to convert a network flow problem into a matrix problem then find the general solution.

11. [Hint: write the general solution], 12 [Bonus: explain why in both questions, the number of free variables is equal to the number of closed loops in the flow]

1.7: Goals: Understand linear dependence and independence; understand the relationship between dependence of the columns of a matrix and the number of solutions to the corresponding matrix equation.

2, 8 [Hint: don't get confused—this is not an augmented matrix], 10, 22.

1.8: Goals: Know the properties of a linear transformation; recognize geometric properties of some linear transformations.

8, 11, 18.

(we will do a couple more from 1.8 in HW3).