

18.06 (Fall '11) Problem Set 4

This problem set is due Thursday, October 13, 2011 at 4pm. The problems are out of the 4th edition of the textbook. For computational problems, please include a printout of the code with the problem set (for MATLAB in particular, `diary("filename")` will start a transcript session, `diary off` will end one.)

1. Do Problem 1 from 3.6.
2. Do Problem 3 from 3.6.
3. Do problem 9 from 3.6.
4. Do Problem 25 from 3.6.
5. Do Problem 27 from 3.6.
6. Do problem 28 from 3.6 (challenge problem not required).
7. Do problem 2 from 8.2.
8. Do problem 17 from 8.2.
9. Take the 8 vertices and the 12 edges of a cube, and look at its incidence matrix.
 - (a) Find the dimensions of the four fundamental subspaces of the graph.
 - (b) Show that the six “loops” around the faces of a cube are linearly dependent; be clear about what vector space these loops live in. You’re allowed to just draw a picture to show this, but explain what your picture means.
10. Do problem 3 from 4.1.

18.06 Wisdom. Enjoy the nice fall weather, even if it means putting off 18.06 once in a while.