

03/11/09

Math 412

HW8

Due Wednesday, March 18, 2009

Solve five of the next six problems.

1. Without using any results on matchings in bipartite graphs, prove directly that for every positive integer k , every k -regular bipartite graph satisfies Tutte's Condition (and therefore, by Tutte's Theorem, has a perfect matching).
2. Let G be an n -vertex 3-regular graph with at most 5 cut-edges. Prove that G has a matching with at least $0.5n - 1$ edges. What about 6 cut-edges?
3. # 3.1.29 in the book.
4. # 3.3.10 in the book.
5. # 3.3.22 in the book.
6. # 3.3.25 in the book.

Problems below review basic concepts and their ideas could be used in the tests.

WARMUP PROBLEMS: Section 3.3: # 3, 4, 7. Do not write these up!

OTHER INTERESTING PROBLEMS: Section 3.3: # 7, 8, 9, 16, 22, 26. Do not write these up!