m38s11 Midterm 1

Textbook sections:
    1.1 except "girth"; 1.2; Definition 1.3.1;
    2.1 to p. 70; 2.2 to p. 85 plus 87–88; 2.3 to p. 98;
    3.1 to p. 115; 4.1 to p. 154.
    5.1 to p. 193.

Topics
- basic definitions and major examples
    - complete graphs
    - complete bipartite graphs
    - paths and cycles
    - stars and trees
    - weighted graphs
- paths and related notions
    - shortest paths
    - cycles and bigraphs
    - Eulerian graphs
    - connectivity
- adjacency and incidence matrices
- trees and their properties
    - spanning trees
- taking apart graphs via edges
    - matchings
    - edge covers
    - decompositions
- taking apart graphs via vertices
    - independent sets
    - vertex covers
- graph coloring: $\chi(G)$ and basic bounds and examples