

## GRAPH THEORY TW782

### Assignment 6 (due Friday 1 September 2017)

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Read Chapter 6, sections 6.1 and 6.2 of *A First Course in Graph Theory* by Chartrand and Zhang, and then do the following exercises.

1. exercise 6.2
  2. exercise 6.4
  3. exercise 6.6
  4. Prove that  $K_{n,n+1}$  is not Hamiltonian for every positive integer  $n$ .
  5. Prove that no bipartite graph of odd order is Hamiltonian.
  6. Prove that  $K_{n,n}$  is Hamiltonian for every integer  $n \geq 2$ .
  7. Show that  $\overline{K_2} + (K_m \cup K_n)$  is Hamiltonian for any pair  $m, n$  of positive integers.
  8. Show that for every  $n \geq 3$  there exists a non-Hamiltonian graph of order  $n$  with the property that there is a Hamiltonian path between every pair of non-adjacent vertices.
  9. exercise 6.18
  10. exercise 6.24
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