

# CS 312: Algorithms

## Homework 8

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### Instructions

Complete all problems and submit by Thursday, April 18. You may work together with other students, but *your written work must be your own*. I highly encourage you to attempt the problems first on your own, especially the simpler ones.

Please make sure to:

- Write your name on your submission
- Write the name of all students with whom you collaborated
- Cite any sources you used other than the textbook or course notes.

### Problems

1. (10 points) Chapter 7, Exercise 1. (**Note:** Parts (a) and (b) ask questions about two different figures.)
2. (10 points) Chapter 7, Exercise 3. (**Note:** The problem refers to a figure on the following page.)
3. (5 points) Chapter 7, Exercise 4
4. (5 points) Chapter 7, Exercise 5
5. (10 points) Chapter 7, Exercise 7.

(**Hint:** Model this as a flow problem. What are the nodes? What are the edges? What are the capacities? Do you need to add any nodes to the network? Think about how we modeled bipartite matching as a flow problem. You may assume that a maximum flow assigns integer flow values to each edge.)