Directions: Solve the following problems. All written work must be your own. See the course syllabus for detailed rules.

- 1. [2.2.3] What is the maximum number of edges in an *n*-vertex bipartite graph? Prove your answer is correct.
- 2. [2.2.6] Each of 9 users sends three friend requests on a social media platform. Is it possible that each person p receives exactly 3 friend requests from the same three people to whom p sent the requests? What if the number of users is 8 instead?
- 3. [2.2.13] Show that the two graphs below are isomorphic.

