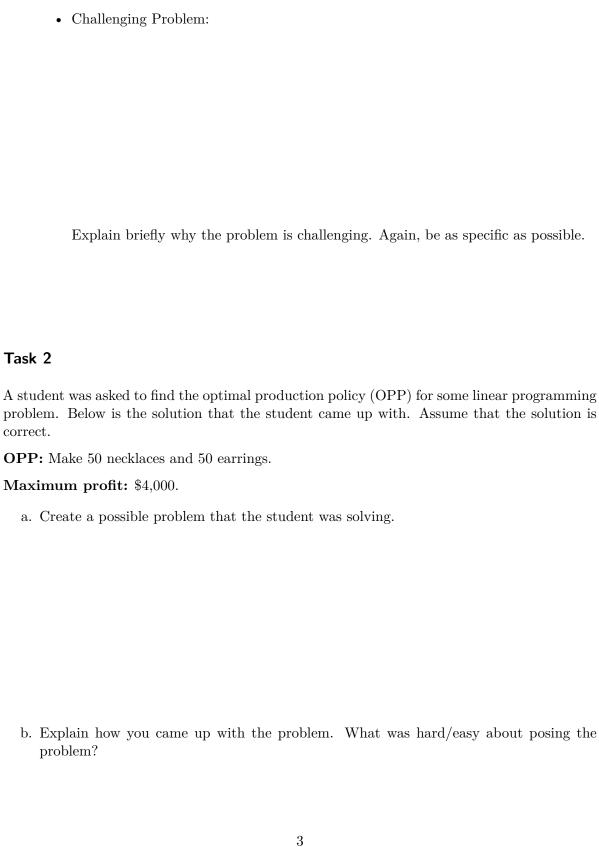# Problem Posing 1

Instructions:

- Download the pdf of this document. Look for a PDF link on the right of this page.

- Write your responses in the spaces provided. You may add an extra pages if you need more space. You may write digitally (using ipad/tablet) or type directly in the pdf. If your handwriting is hard to read, I suggest you type your responses. Otherwise, I may return the assignment to you.

- Scan your work (if you need to) then upload to Canvas.

Task 1

By modifying and/or adding various elements to each the following problems, pose two mathematical problems of your own. One of the problems should be **easy** and the other should be **challenging**. Your audience is your fellow classmates in our class. Solving your posed problem is not required.

a. A factory manufactures chairs and tables, each requiring the use of three operations: Cutting, Assembly, and Finishing. The first operation can be used at most 39 hours; the second at most 42 hours; and the third at most 23 hours. A chair requires 1 hour of cutting, 2 hours of assembly, and 1 hour of finishing; a table needs 2 hours of cutting, 1 hour of assembly, and 1 hour of finishing. If the profit is \$20 per unit for a chair and \$30 for a table, how many units of each should be manufactured to maximize profit?.

  - Easy Problem:

Explain briefly why the problem is easy. Be as specific as possible.

- Challenging Problem:

Explain briefly why the problem is challenging. Again, be as specific as possible.

b. Jane owns a restaurant in downtown, Ithaca. Each year, her fixed costs stand at approximately \$349,500 while her total costs for serving 30,000 meals stands at \$691,000.Find the cost function,C(x), where x is the number of meals served.

- Easy Problem:

Explain briefly why the problem is easy. Be as specific as possible.

- Challenging Problem:

Explain briefly why the problem is challenging. Again, be as specific as possible.

Task 2

A student was asked to find the optimal production policy (OPP) for some linear programming problem. Below is the solution that the student came up with. Assume that the solution is correct.

OPP: Make 50 necklaces and 50 earrings.

Maximum profit: $4,000.

a. Create a possible problem that the student was solving.

b. Explain how you came up with the problem. What was hard/easy about posing the problem?

Task 3

Pose a real-world mathematical problem for which the following would a feasible region (labelled as R). Assume that the profit function is P = 2.25x + y.