

Homework #1

problem #3 from Ch. 2, p. 41–42 of Case/Fair *Principles...* (6th ed.)
 and a few of my own problems

3. Kristin and Anna live in the beach town of Santa Monica. They own a small business in which they make wristbands and potholders and sell them to people on the beach. Kristen can make 15 wristbands per hour, but only 3 potholders. Anna is a bit slower and can make only 12 wristbands or 2 potholders in an hour.

	<u>output per hour</u>	
	Kristin	Anna
Wristbands	15	12
Potholders	3	2

- a. For Kristin and for Anna what is the opportunity cost of a potholder? Who has a comparative advantage in the production of potholders? Explain.
- b. Who has a comparative advantage in the production of wristbands? Explain.
- c. Assume that Kristin works 20 hours per week in the business. If Kristin were in business on her own, graph the possible combinations of potholders to wristbands that she could produce in a week. Do the same for Anna.
- d. If Kristin devoted half of her time (10 out of 20 hours) to wristbands and half of her time to potholders, how many of each would she produce in a week? If Anna did the same, how many of each would she produce? How many wristbands and potholders would be produced in total?
- e. Suppose that Anna spent all 20 hours of her time on wristbands and Kristin spent 17 hours on potholders and 3 hours on wristbands. How many of each would be produced?
- f. Suppose that Kristin and Anna can sell all their wristbands for \$1 each and all their potholders for \$5.50 each. If each of them worked 20 hours per week, how should they split their time between wristbands and potholders? What is their maximum joint revenue.

Do this too! Think about problem 3.f. using different relative prices, i.e. How should Kristin and Anna optimally allocate their time if the price of potholders was \$4? if it was \$5.50? and if it was \$7? What is their maximum joint revenue in each case?



Do this too! In the story of Colleen and Bill on p. 28–29 of Case/Fair *Principles...*, there's an **error**. The book says Bill and Colleen produce logs and bushels of food at the following rates:

	<u>Production per day</u>	
	Colleen	Bill
food (bushels)	10	8
fuel (logs)	10	5

The book also says that Bill and Colleen value bushels of food and logs equally, so that the price of one bushel equals the price of one log.

- Despite what is written,
 - Bill gains from trade with Colleen, but
 - Colleen doesn't gain from trade with Bill.
 - However, she doesn't lose by trading with Bill.
- Why doesn't Colleen gain from trade?
- Leaving opportunity costs unchanged, how can the story be rewritten, so that both Bill and Colleen gain from trade?

Hint: How does the assumption that Bill and Colleen value bushels of food and logs equally prevent Colleen from gaining from trade (given the production rates given above)?



Graduate Students: Do this too!

Assume that there are only two countries in the world: Home and Foreign. Assume that there are 300 workers in Home and 100 workers in Foreign.

In Home, 2 units of labor are needed to produce one unit of wine and 3 units of labor are needed to produce one unit of cloth. In Foreign, 5 units of labor are needed to produce one unit of wine and 4 units of labor are needed to produce one unit of cloth.

Assume that each country's utility is given by the Cobb-Douglas production function:

$$U = C^{0.5} \cdot W^{0.5}$$

Note that the demand functions associated with such a utility function are given by:

$$C = 0.5 \cdot \frac{M}{p_C} \quad W = 0.5 \cdot \frac{M}{p_W} \quad \text{where: } M \text{ is money income}$$

p_C is the price of cloth
 p_W is the price of wine

- Find the autarky relative price of wine in each country. How much wine and cloth does each country consume in autarky?
- Now assume that Home and Foreign engage in trade. Set world relative supply of wine equal to world relative demand for wine and solve for the world relative price of wine. (Hint: assume a particular pattern of specialization).
- Are Home and Foreign better off with free trade? Discuss.