

ECON 201, Prof. Hogendorn: Problem Set #2

1. How would you draw an indifference curve map that illustrates the following ideas?
 - (a) Store-brand margarine is just as good as I Can't Believe It's Not Butter.
 - (b) She is a die-hard Macintosh person.
 - (c) A day without wine is like a day without sunshine.
 - (d) It takes two to tango.

2. Suppose that there are two types of jazz music, smooth jazz and traditional jazz. The only jazz radio station in a city plays 10 minutes of smooth jazz for every 10 minutes of traditional jazz. Graph this point (10,10), and then analyze the preferences of the listeners. Assume all listeners have convex preferences, and there are two *equal-sized* groups of listeners, Group 1 and Group 2.
 - (a) At the (10,10) point, Group 1 listeners have an MRS of 1 minute of traditional jazz per 4 minutes of smooth jazz. Graph the group 1 indifference curve through the (10,10) point.
 - (b) At the (10,10) point, Group 2 listeners have an MRS of 8 minutes of traditional jazz per 1 minutes of smooth jazz. Graph the group 2 indifference curve through the (10,10) point.
 - (c) Suppose the radio station changes its format somewhat and plays 11 minutes of smooth jazz for each 9 minutes of traditional jazz. Which type of listener has moved further in space on the graph from its old indifference curve?
 - (d) Can we say which type of listener is better off and which worse off? Can we say whether the gains to one group more than offset the losses to the other? (Be very careful on this last question.)

3. Let an individual have the utility function

$$U(X, Y) = X^{1/3}Y^{2/3}$$

- (a) Compute the marginal utility of X when $X = Y = 1$.
- (b) Compute the marginal utility of Y when $X = Y = 1$.
- (c) Compute the marginal utility of X when $X = Y = 27$.
- (d) Compute the marginal rate of substitution when $X = Y = 1$.
- (e) Compute the marginal rate of substitution when $X = Y = 27$.

4. Now apply methods from Chapter 4 to Problem 2. Suppose that minutes of smooth jazz are m_s , minutes of traditional jazz are m_t , and both types of listeners have Cobb-Douglas utility functions of the form:

$$u(m_s, m_t) = m_s^a m_t^{(1-a)}$$

- (a) What is the value of a for the Group 1 listeners?
- (b) What is the value of a for the Group 2 listeners?
- (c) Suppose that both types of listeners listen $10u(m_s, m_t)$ minutes per day. Suppose the radio station gets more profits the more the total number of minutes of listening. Is the change in format profitable?
- (d) Can we now say whether the gains to one group more than offset the losses to the other? (Again, be very careful on this question.)
- (e) Would a further change to 12 minutes of smooth per 8 minutes traditional be profitable? (You can answer this question very quickly just by recalculating the MRS).