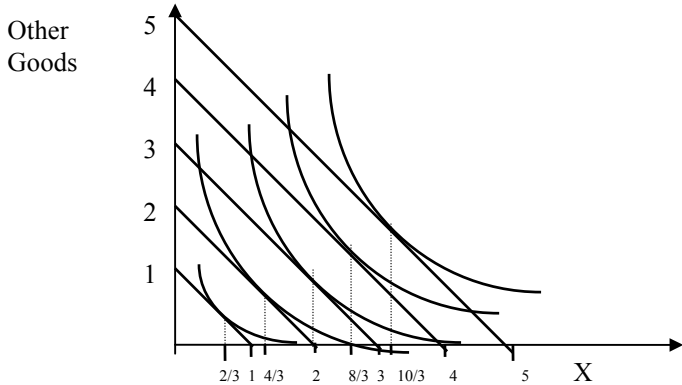


Problem Set # 5
Econ 2106H, J. L. Turner

1. Define (in words) the following: (i) Income Consumption curve, and (ii) Engel curve.

Given an individual with the following budget constraints and preferences:

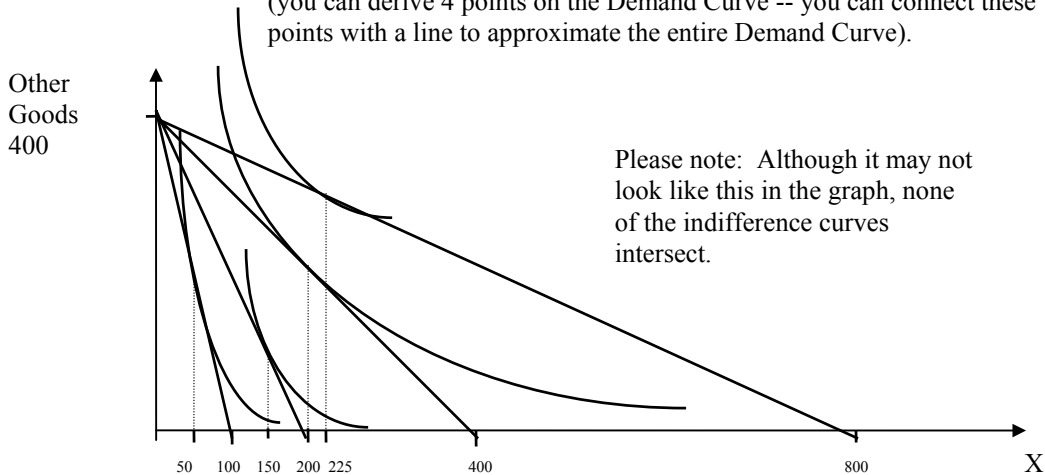
- What is the price of good x (assume the price of other goods is \$1)?
- Derive their Income Consumption Curve for x.
- Use your answer from part a) to derive (graphically) their Engel curve for x (you can derive 5 points on the Engel Curve -- you can connect these points with a line to approximate the entire Engel Curve).



2. Define (in words) the following: (i) Price Consumption Curve.
(ii) Demand Curve.

Given an individual with the following preferences and again assume price of other goods = \$1:

- Derive their Price Consumption Curve for x.
- Use your answer from part a) to derive (graphically) their Demand Curve for x.
(you can derive 4 points on the Demand Curve -- you can connect these points with a line to approximate the entire Demand Curve).

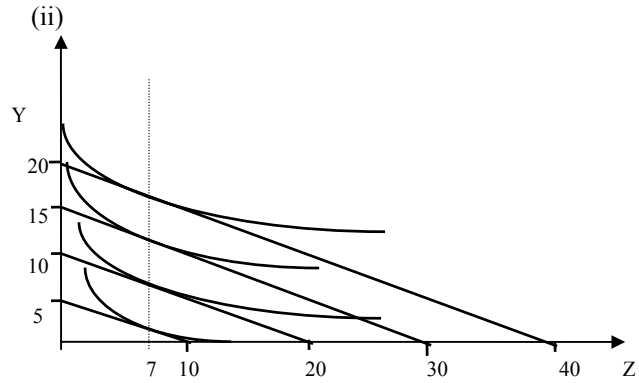
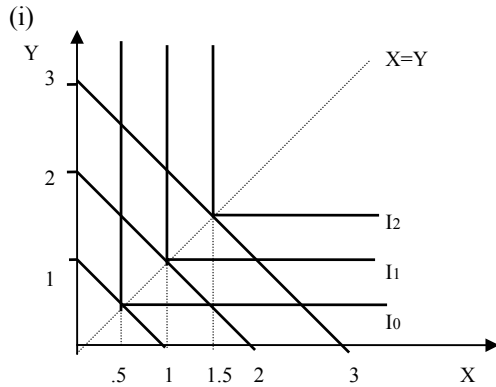


3. Mr. Clean (a.k.a. Len) spends his income on soap and "all other goods." Assume the price of "all other goods" is \$1. Regardless of his income level, he purchases the same number of bars of soap. Sketch an indifference map that is consistent with this behavior. Graph an Income Consumption Curve and Engel Curve.

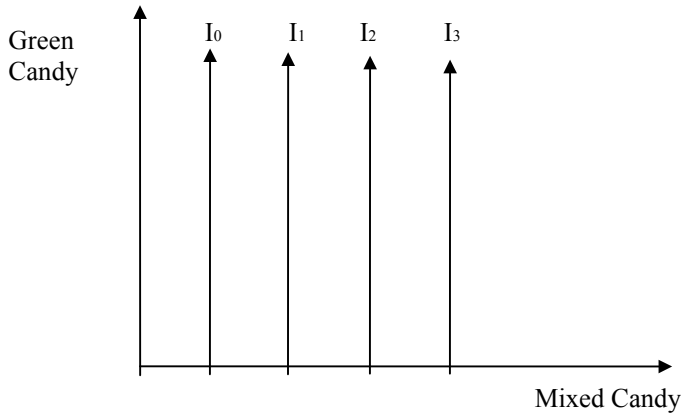
4. Derive (i.e. graph) the Demand Curves for bacon and hamburger meat for Elvis based on the assumptions from questions #2 & #3 in the 3rd problem set:

5. Assume the price of y is \$1.

- What type of goods exhibit the following Income Consumption Curves?
- Derive the Engel Curves for good x and z.
- Does good z have a downward sloping demand curve?



6. Recall from problem set #3, problem #5, that Len has indifference curves for the two types of candy bags (green and mixed) that look like this:



Assume that Len spends all of his income on candy. Do the following:

- Derive Len's Income Consumption Curve for G and M assuming the green bag costs \$.50 and the mixed bag costs \$2
- Derive Len's Engel curve for G and M assuming the green bag costs \$.50 and the mixed bag costs \$2
- Derive Len's Price Consumption Curve for G and M assuming his income is \$10.
- Derive Len's Demand Curve for G and M assuming his income is \$10.

7. Often in economics we make the assumption that indifference curves are "infinitely close together". What is the rationale for doing this? Specifically, what assumption or assumptions are being made when one makes this assertion?

8. Suppose Jason and Len are the only two consumers in the coffee market. Jason's demand curve for cups of coffee is $P=100-Q$, and Len's demand curve is $P=40-2Q$.

- Graph the 2 individual demand curves for coffee.
- What is the demand curve for cups of coffee?
- Graph the market demand curve for cups of coffee (on the same graph from part (a).)
What is the market demand curve if there are 10 people with Jason's demand curve (including Jason) and 20 people with Len's demand curve (including Len).

9. Suppose there are only 2 goods that consumers purchase, X and Y. The price of Y is \$1 and all 50 people in this economy have income of \$100. Assume the two goods are perfect complements with a 1:1 "bliss" ratio.

- a) What is the budget constraint (Assume the price of x is P)
- b) What is each individual's demand curve for X ?
- c) What is the market demand curve for X ?