PRACTICE SHEET 4B

1. Consider a consumer with preferences between tickets for the opera and the cinema. Depict the quantity of opera (O) tickets in the x-axis and cinema (C) tickets in the y-axis for each of the following situations:

   - Plot the consumer's indifference map.
   - Guess a possible value for the Marginal Rate of Substitution between cinema and opera tickets (MRS_o^c).

   (a) The consumer is (completely) indifferent between going to the cinema or the opera, but the more she goes (to any of them) the better she feels.

   (b) She loves the cinema and she is indifferent to the opera.

   (c) She loves the opera so much that she would never change an opera ticket for a cinema ticket.

   (d) She likes the opera and the cinema, but the more she attends one of these two entertainments, the more she likes the entertainment chosen (compared to the other).

   (e) She likes the opera and the cinema, but she prefers to share her free time between both rather than choosing just one of them.

   (f) She hates the opera, but she loves the cinema.

   (g) She likes the cinema and the opera, but she has enough with one movie and one opera a week. She feels tired with more than that, so she prefers to stay at home.

2. Plot the indifference curve map between quantity of coffee (x−axis) and sugar (y−axis) for a consumer who:

   - just likes sweet coffees; she does not like coffee without sugar,
   - she prefers more than less coffee, and
   - she only likes a cup of coffee with two spoonfuls of sugar, so that if she drinks more coffee (with two spoonfuls of sugar) or containing more sugar (than two spoonfuls) her satisfaction does not vary.

3. Ben is a competitive consumer who has $500 per year to spend in sandwiches (S) and beverages (B). Suppose that:

   - A sandwich price is $5 and a beverage price is $2,
   - Ben's preferences are usual (strictly convexes), and
   - the Marginal Rate of Substitution between beverages and sandwiches is $MRS_S^B = B/S$.

(a) Depict Ben's budget constraint with the quantity of sandwiches in the x−axis and the quantity of beverages in the y−axis. Get its algebraic expression, as a function of S (the quantity of sandwiches).

(b) What's a sandwich worth in terms of beverages in the market?

(c) Imagine Ben buys 90 sandwiches and 25 beverages this year. What is a sandwich worth in terms of beverages for Ben?

(d) Is Ben maximizing his satisfaction when consuming 90 sandwiches and 25 beverages? If he is not, what should Ben do in order to increase his satisfaction, exchange sandwiches for beverages?

(e) What is Ben's optimal consumption bundle? Plot it in the previous graph.

(f) Calculate the algebraic expression of Ben's demand curve for sandwiches, given the income ($500) and the beverages price ($2).

(g) Calculate the algebraic expression of Ben's demand curve for beverages, given the income ($500) and sandwiches price ($5).

4. Assume two consumers who buy goods X and Y with preferences represented by $MRS_X^Y(A) = Y/(2X)$ for consumer A and $MRS_X^Y(B) = Y/(4X)$ for consumer B. The income is 150 and 300 monetary units for A and B, respectively.

(a) If the price of X were 10 and the price of Y were 5, what would be the quantity demanded for Y by each of the consumers? What would be the total quantity demanded for Y?

(b) Get the demand curve for Y for A and B. Finally, get the expression of the demand curve for Y in this market.

5. Consider a competitive consumer with 'usual' preferences between X and Y. She decides to spend 300 euros on them. Her optimal consumption bundle is $X^* = 8, Y^* = 4$ and her $MRS_X^Y(X^*, Y^*) = 2$.

(a) What is the price of each of the goods?

(b) Now assume she reduces her income devoted to X and Y to 150 euros, the prices keep constant, X is a normal good and Y is an inferior good. For each situation (income 300 and 150), depict her budget line and the indifference curves that show her optimal consumption bundles.