

Multiple choice: 5 pts. each, circle correct answer.

Answer questions 1-3 on the basis of the following information. Southeast Airlines and Jet Purple are the only two airlines serving the Pikeville-Paducah route. Over a five-month period you collect data on the prices charged by each airline, average monthly per capita income in the combined Pikeville-Paducah market area, and the load factor (LF) for each airline.

Month	SE Price	JB Price	Income	SE LF	JB LF
1	✓ \$110	✓ \$112	\$2000	65	60
2	✓ 109	111	✓ 1900	70	61
3	✓ 110	✓ 112	2100	70	66
4	① < 108	✓ 110	✓ 1900	68	59
5	✓ 109	✓ 110	✓ 1900	62	63

1. The own-price elasticity of demand for Southeast Airlines tickets is

D

a) 0.1
 b) 1.0
 c) 6
 d) 10

$$E_{x, P_x} = \frac{\frac{\Delta X}{X_0 + X_1}}{\frac{\Delta P_x}{P_0 + P_1}} = \frac{\frac{6}{68 + 62}}{\frac{1}{108 + 109}} = \frac{\frac{6}{130}}{\frac{1}{217}} = 10.02$$

2. The income elasticity of demand for Southeast Airlines tickets is

A

a) Greater than 1
 b) Between 0 and 1
 c) Less than 0
 d) 0

$$E_{x, I} = \frac{\frac{\Delta X}{X_0 + X_1}}{\frac{\Delta I}{I_0 + I_1}} = \frac{\frac{5}{65 + 70}}{\frac{100}{2000 + 2100}} = 1.52$$

3. The cross-price elasticity of demand between Southeast Airlines tickets with respect to Jet Purple prices is

A

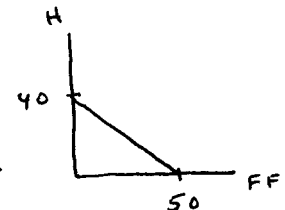
a) 13.4
 b) 8.0
 c) 0
 d) -1.3

$$E_{x, P_y} = \frac{\frac{\Delta X}{X_0 + X_1}}{\frac{\Delta P_y}{P_y^0 + P_y^1}} = \frac{\frac{8}{62 + 70}}{\frac{1}{110 + 111}} = +13.39$$

4. Popeye's budget line relating hamburgers and French fries has intercepts of 40 hamburgers and 50 orders of French fries. If the price of hamburgers is \$2.50, then Popeye's income is

C

a) \$16
 b) \$20
 c) \$100
 d) Can't be determined without knowing the price of French fries.



5. Use the information from question (4) above. Hamburgers are on the vertical axis, French fries are on the horizontal axis. The slope of Popeye's budget constraint is:

a) -2.5

b) -1.25

c) -0.8

d) can't be determined without knowing the price of French fries.

$$\frac{\Delta Y}{\Delta X} = -\frac{40}{50}$$

C

6. Consider two market baskets, A (\$100 worth of other goods Y, 10 packages of Ramen noodles X) and B (\$150 worth of other goods, 10 packages of Ramen noodles). If Ramen noodles are a normal good, then we can conclude

a) The consumer's marginal rate of substitution between Ramen noodles and other goods, MRS_{XY} , will be greater when market basket A is consumed.

b) The consumer's marginal rate of substitution between Ramen noodles and other goods, MRS_{XY} , will be greater when market basket B is consumed.

c) The consumer's marginal rate of substitution between Ramen noodles and other goods, MRS_{XY} , will be the same in each case.

d) This question cannot be answered based on the information given.

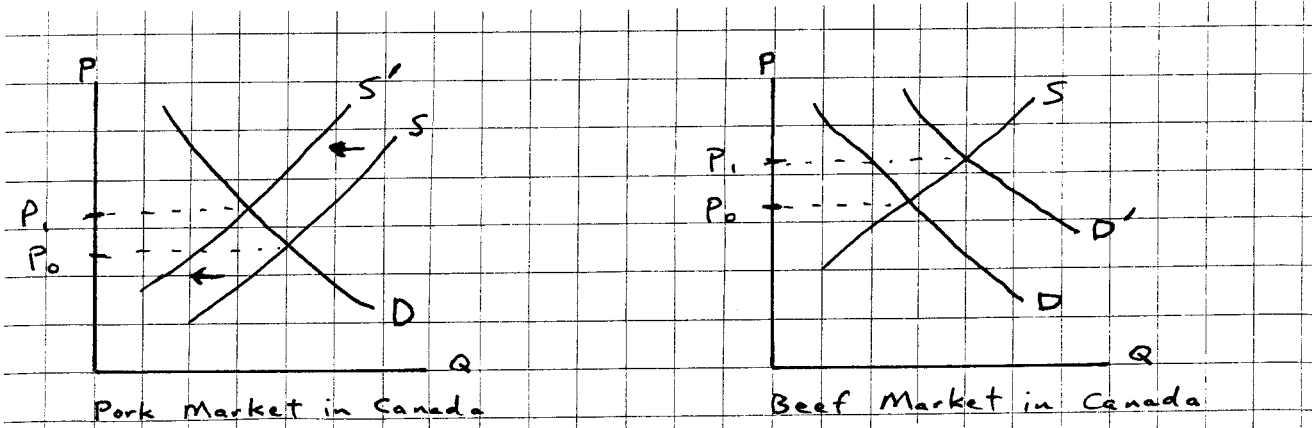
B

[see
textbook
p. 578
3.14]

7. (20 pts.) Pork production is a major industry in the United States. Canada imports much of its pork from the U.S. A new disease, Perturbed Pig Disease, strikes U.S. hogs (but not Canadian hogs), leading Canada to ban imports of U.S. pork into Canada.

a) Use supply and demand analysis to analyze the effect of this ban on the market for pork in Canada. Illustrate in the diagram below and briefly explain.

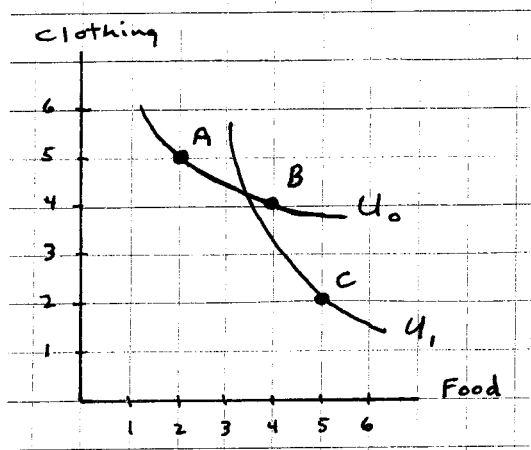
b) Now analyze the impact on the market for beef in Canada. Illustrate in the diagram below and briefly explain.



Shutting off imports reduces the supply of hogs and hence pork in Canada. This leads to higher pork prices.

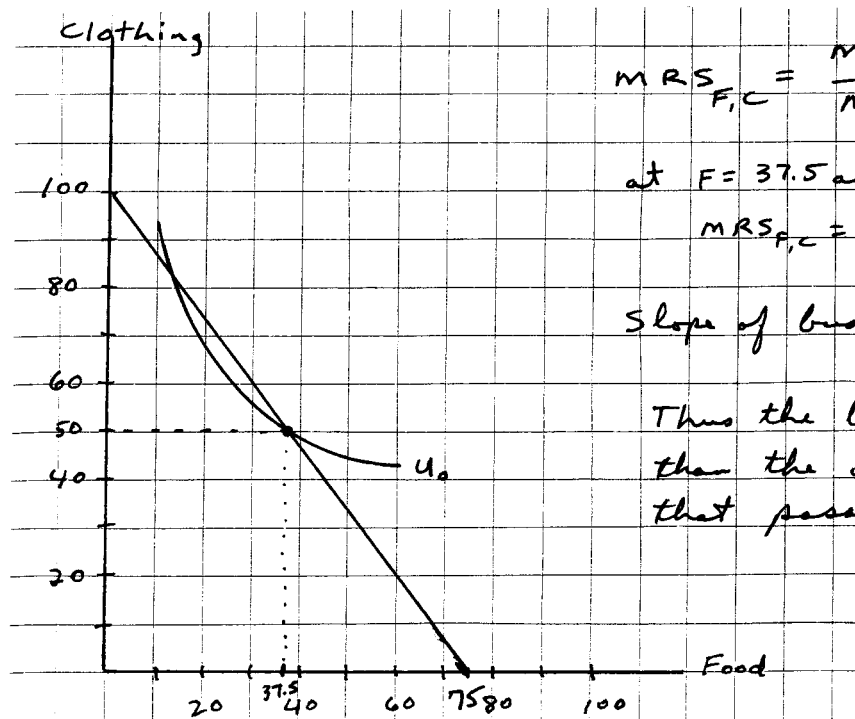
Since beef and pork are substitutes, higher pork prices will cause consumers to substitute toward beef. Demand for beef increases leading to higher prices.

8. (15 pts.) Draw this picture and then briefly explain what is wrong with it. Mad Max is asked to reveal his preferences for several different market bundles. Bundle A consists of 2 units of Food and 5 units of Clothing. Bundle B has 4 Food and 4 Clothing. Bundle C has 5 Food and 2 Clothing. Max is indifferent between bundles A and B. He prefers bundle C to bundle A.



Bundles A and B are equally preferred and thus lie on the same indifference curve. The only way for bundle C to lie on a higher indifference curve than A is if the indifference curves intersect or if the consumer has an increasing and not diminishing MRS between food and clothing.

9. (15 pts.) Max's sister Miriam also consumes Food and Clothing. The market prices of food and clothing are $P_F = \$8$ and $P_C = \$6$. Miriam has an income of \$600 and is currently consuming 37.5 units of food and 50 units of clothing. At her current rates of consumption, her marginal utility of food is 15 units of utility and her marginal utility of clothing is 20 units of utility. Is Miriam maximizing utility? Illustrate her budget line and indifference curve in the diagram below.



$$MRS_{F,C} = \frac{MU_F}{MU_C}$$

at $F = 37.5$ and $C = 50$,

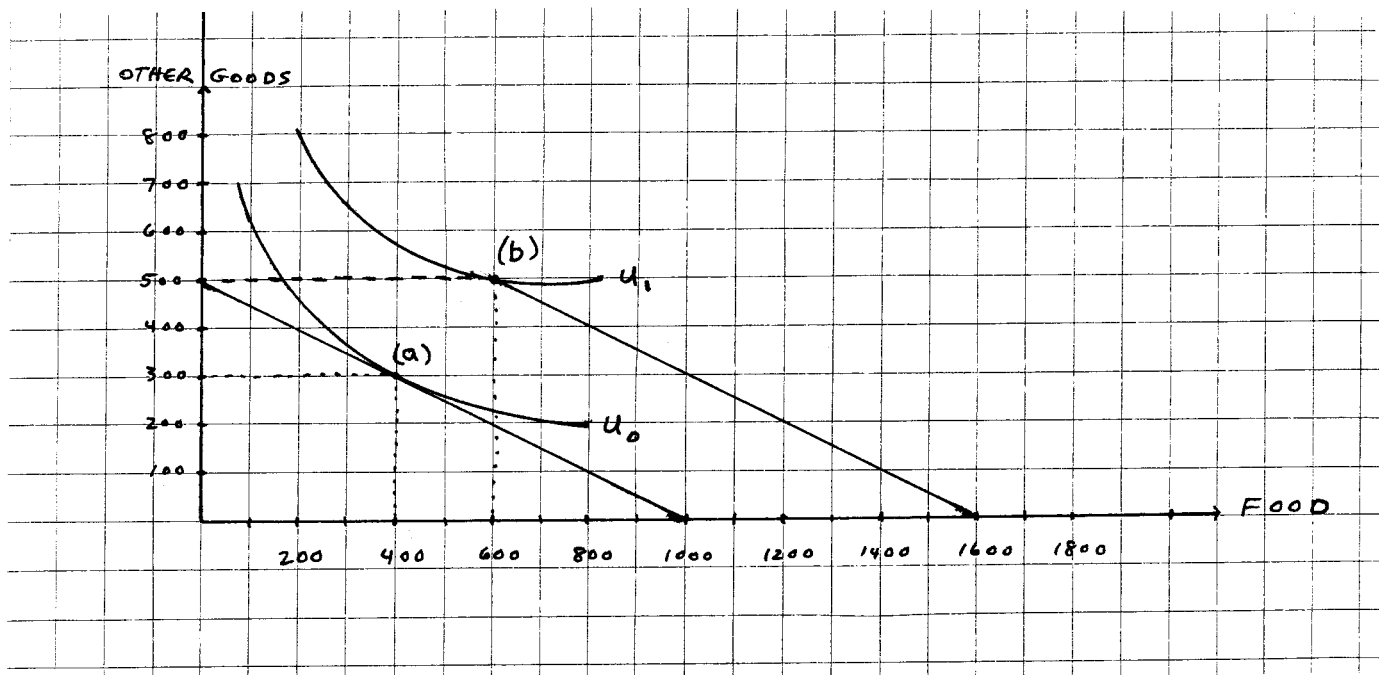
$$MRS_{F,C} = \frac{15}{20} = .75$$

$$\text{Slope of budget line} = \frac{P_x}{P_y} = \frac{8}{6} = 1.33$$

Thus the budget line is steeper than the indifference curve (U_0) that passes through $F = 37.5$, $C = 50$.

10. (20 pts.) Homer finally gets fired from his job once and for all. His spirit broken, he sits around the house all day and does nothing. Marge is able to earn some income by taking in and doing other people's laundry. As a result the household's income is \$500 per month. Under these conditions, the Simpson family chooses to consume 400 units of food ($P_F = \$0.50$ per unit) and 300 units of other goods ($P_{OG} = \$1$ per unit).

- Illustrate the Simpsons' situation with a budget constraint and indifference curve in the diagram below.
- Suppose the Simpsons qualify for a food stamp program whereby they are given coupons that can be redeemed for 600 units of food, but cannot be used to purchase other goods. While they consider themselves better off than before, they would have preferred to be given the cash equivalent and be allowed to spend it as they wish. Illustrate their new situation in the diagram.



- The Simpson's original budget constraint given income = \$500. They maximize utility by consuming $F=400$ and $OG=300$.
- The Simpson's new budget constraint is kinked. They can consume $F=0, OG=500$, or $F=600, OG=500$, or $F=1600, OG=0$. If they had been given cash income of \$300 (600 units of food \times \$0.50/unit) on top of their \$500 income, their budget constraint would be a straight line. They would have preferred the cash if their preferences are as illustrated in (b) above. [See textbook p.68 Fig. 316]