

ECO 401-001
Fall 2004
Problem Set #3

Due: Monday, October 18

1. Having fallen upon hard times, Ozzie's weekly income is \$120. He consumes CD's and other goods, the prices of which are \$12 and \$1, respectively. Under these circumstances Ozzie buys 5 CD's per week. Then Ozzie decides to get into unreality TV. After his TV show takes off, Ozzie's income increases to \$150 per week, and he increases his CD purchases to 7 per week. Finally, his agent convinces him to go on tour to take advantage of his second fifteen minutes of fame, increasing his weekly income to \$180. At that income Ozzie decides to reduce his weekly CD purchases back to 5.
 - a) Draw Ozzie's income-consumption curve diagram for CD's and OG's (other goods).
 - b) Using the information available (i.e. one point on each demand curve), sketch Ozzie's demand curves for CD's corresponding to income levels of \$120, \$150, and \$180.
 - c) Without actually calculating it, what can you say about Ozzie's income elasticity of demand for CD's? Are they inferior or normal?
2. $I = \$40$, $P_x = \$8$, and $P_y = \$1$. Janis demands 2 units of X under these circumstances. When P_x falls to \$4, her demand is $X = 5$. At $P_x = \$2$, $X = 8$.
 - a) Illustrate Janis's price-consumption curve for X.
 - b) In a separate diagram, illustrate Janis's demand curve for X.
 - c) Now without actually computing own-price elasticity of demand, is demand elastic or inelastic when P_x falls from \$8 to \$4? When price falls from \$4 to \$2? Briefly explain.
3.
 - a) Illustrate the income and substitution effects of an increase in P_x if $\epsilon_{x,I} > 0$.
 - b) Illustrate the income and substitution effects of a decrease in P_x if $\epsilon_{x,I} < 0$.
4. With an income of \$300 per month, the Jones family purchases 75 gallons of fuel oil per month when its price is \$1 per gallon. The government then agrees to pay half the family's heating bill. With the government subsidy (\$0.50 per gallon), the Jones' consumption of fuel oil rises to 100 gallons per month.
 - a) Illustrate the family's consumption choices in a budget constraint-indifference curve diagram. Show the cost of the subsidy to the government.
 - b) Illustrate the Jones family's demand curve for fuel oil.
 - c) Now using the concept of consumer's surplus, illustrate in your diagram the benefit to the Jones family of the subsidy program. Also using your diagram, contrast that to the actual cost to the government of the subsidy.
5. Suppose that instead of subsidizing the cost of fuel oil, the government gives the Joneses a lump-sum transfer each month of \$50. Which would the Joneses prefer, the price subsidy or the lump-sum transfer? Carefully explain your answer using a diagram with budget lines and indifference curves.