

ECO 401-002
Spring 2003
Problem Set #3

Due: Thursday, February 20, 2003

1. Having recently 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. After his TV show takes off, Ozzie's income increases to \$150 per week, and he increases his CD purchases to 7 per week. His agent convinces him to go on tour, 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, draw 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 demand curve for X.
 - b) In a separate diagram, illustrate Janis's price-consumption 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. Recall the Jones family from Problem Set #2. They purchase 75 gallons of fuel oil per month when its price is \$1 per gallon and their income is \$300. They increase their purchases to 100 gallons per month when the government subsidizes the price of fuel oil by \$.50 per gallon.
 - a) Illustrate the Jones family's demand curve for fuel oil.
 - b) 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.