

ECON 101

TA Worksheet, Module 5

Name: _____

TA: _____

1. Think of some goods you buy that (for you) have very inelastic demand. Why is your demand inelastic for these products?

laundry detergent
cheetos (if you rly like them)

2. My son, Levi, wanted to sell lemonade on the sidewalk by our house. I told him he had to charge \$1 per cup. After selling 10 cups he got tired and gave up. The next day I said he could charge \$2 per cup. That day he decided to stay out longer and sold 30 cups. Using this info, what can we calculate? What number do we get?

$$\text{price elasticity of supply} \quad \cdot 1 \cdot \Delta Q_S = \left(\frac{30 - 10}{\frac{30+10}{2}} \right) \times 100 = 100$$

$$\epsilon_S = \frac{\cdot 1 \cdot \Delta Q_S}{\cdot 1 \cdot \Delta P} = \frac{100}{200} = \frac{300}{200} = \frac{3}{2} = 1.5 \quad \cdot 1 \cdot \Delta P = \left(\frac{2-1}{\frac{2+1}{2}} \right) \times 100 = \frac{2}{3}(100) = \frac{200}{3}$$

3. Suppose we have this demand curve: $Q = 20 - 0.5P$. What is the price elasticity of demand if the price falls from 6 to 4?

$$Q_1 = 20 - 0.5(6) = 20 - 3 = 17$$

$$Q_2 = 20 - 0.5(4) = 20 - 2 = 18$$

$$\epsilon_D = \frac{\cdot 1 \cdot \Delta Q_D}{\cdot 1 \cdot \Delta P} = \frac{\frac{18-17}{18+17}}{\frac{4-6}{4+6}} = \frac{\frac{1}{35}}{\frac{-2}{10}} = \frac{-10}{70} = -\frac{1}{7}$$

4. Suppose two goods are **PERFECT** complements (you never buy one without buying the other). How does the cross-price elasticity of demand relate to the products' PRICE elasticity of demand?

$$\epsilon_{AB} = \frac{\cdot 1 \cdot \Delta Q_D(A)}{\cdot 1 \cdot \Delta P(B)} \quad \epsilon_{AB} = \epsilon_B$$

$$\epsilon_B = \frac{\cdot 1 \cdot \Delta Q_D(B)}{\cdot 1 \cdot \Delta P(B)}$$

5. At a price of \$12/dozen, Doug's 'Nuts sells 100 dozen doughnuts. At a price of \$8/dozen Doug's would sell 200 dozen. Is demand elastic or inelastic?

$$\epsilon_D = \frac{\cdot 1 \cdot \Delta Q_D}{\cdot 1 \cdot \Delta P} = \frac{\frac{200 - 100}{200 + 100}}{\frac{8 - 12}{8 + 12}} = \frac{\frac{100}{300}}{\frac{-4}{20}} = \frac{\frac{2000}{1200}}{-1.7} = \frac{20}{-12} = -1.7$$

$1.7 > 1 \rightarrow$ elastic demand

$$\epsilon_D = 1.7$$