A direct relation exists between the price of one product and the demand for:

|  |  |
| --- | --- |
| a. | complements. |
| b. | substitutes. |
| c. | normal goods. |
| d. | inferior goods. |

**PROBLEM (show all your calculations)**

**Demand Analysis**. The South Park DVD (season three) has been a slow seller during recent months. An analysis of monthly demand shows:

|  |  |
| --- | --- |
|  | Q = 5,000  160P |

where Q is DVD sales and P is price.

|  |  |
| --- | --- |
| A. | How many DVDs could be sold at a $25 price? |
| B. | Calculate the point price elasticity of demand at a price of $25. |

**Demand Analysis**. KRDY-FM is contemplating a T-shirt advertising promotion. Monthly sales data from T-shirt shops marketing the "Listen to KRDY-FM" design indicate that:

|  |  |
| --- | --- |
|  | Q = 15,000  800P |

where Q is T-shirt sales and P is price.

|  |  |
| --- | --- |
| A. | How many T-shirts could KRDY-FM sell at $15 each? |
| B. | What price would KRDY-FM have to charge to sell 5,000 T-shirts? |
| C. | At what price would T-shirt sales equal zero? |
| D. | How many T-shirts could be given away? |
| E. | Calculate the point price elasticity of demand at a price of $15. |

**Demand Analysis**. The San Diego Zoo is contemplating a stuffed panda bear advertising promotion. Annualized sales data from local shops marketing the "Can't Bear it When You're Away" bear indicate that:

|  |  |
| --- | --- |
|  | Q = 50,000  1,000P |

where Q is Panda bear sales and P is price.

|  |  |
| --- | --- |
| A. | How many pandas could the zoo sell at $30 each? |
| B. | What price would the zoo have to charge to sell 25,000 pandas? |
| C. | At what price would panda sales equal zero? |
| D. | How many bears could be given away? |
| E. | Calculate the point price elasticity of demand at a price of $10. |

5. **Optimal Price**. Last week, Discount Food Stores, Inc. reduced the average price on the 22 ounce size of Dishwashing Liquid by 1%. In response, sales jumped by 8%.

|  |  |
| --- | --- |
| A. | Calculate the point price elasticity of demand for Dishwashing Liquid. |
| B. | Calculate the optimal price for Dishwashing Liquid if marginal cost is 70¢ per unit. |

6. **Optimal Price**. Last week, Wally's Burgers, Inc. reduced the average price on the 1/2-pound Papa burger by 1%. In response, sales jumped by 2%.

|  |  |
| --- | --- |
| A. | Calculate the point price elasticity of demand for Papa burgers. |
| B. | Calculate the optimal price for Papa burgers if marginal cost is $1 per unit. |

7. **Arc Price Elasticity**. Assume that amazon.com dropped the price on a men's Seiko watch (SGF719) from $120 to $60, and sales jumped from 50 to 100 units per day.

|  |  |
| --- | --- |
| A. | Calculate the implied arc price elasticity of demand. |
| B. | Is a further price decrease warranted? Why or why not? |

8. **Arc Income Elasticity**. Glenco Motors sells an average of 20 Toyota Camry XLE four-door sedans per month. Evanston Toyota sells twice as many. Based upon data obtained in the financing process, Glenco customers earn an average household income of $100,000 per year, while Evanston customers earn $125,000 per year.

|  |  |
| --- | --- |
| A. | Calculate the implied arc income elasticity of demand. |
| B. | How would you characterize demand for these Toyota Camrys? |

9. **Income Elasticity**. Deluxe Carpeting, Inc., is a leading manufacturer of stain-resistant carpeting. Demand for Deluxe products is tied to the overall pace of building and remodeling activity and, therefore, is sensitive to changes in national income. The carpet manufacturing industry is highly competitive, so Deluxe demand is also very price-sensitive.

During the past year, Deluxe sold 28 million square feet of carpeting at an average wholesale price of $16 per square foot. This year, GDP per capita is expected to fall from $57,000 to $51,000 as the nation enters a steep recession. Without any price change, Deluxe expects current-year sales to fall to 20 million units.

|  |  |
| --- | --- |
| A. | Calculate the implied arc income elasticity of demand. |
| B. | Given the projected fall in income, the sales manager believes that current volume of 28 million units could only be maintained with a price cut of $2 per unit. On this basis, calculate the implied arc price elasticity of demand. |
| C. | Holding all else equal, would a further increase in price result in higher or lower total revenue? |

10. **Price Elasticity**. Z-Best Pizza recently decided to raise its regular price on medium pizzas from $9 to $12 following increases in the costs of labor and materials. Unfortunately, sales dropped sharply from 8,100 to 4,500 pizzas per month. In an effort to regain lost sales, Z-Best ran a coupon promotion featuring $5 off the new regular price. Coupon printing and distribution costs totaled $100, and caused only a modest increase in the typical advertising budget of $2,400 per month. The promotion was judged a success as it proved highly popular with consumers. In the period prior to expiration, coupons were used on 40% of all purchases and monthly sales rose to 7,500 pizzas.

|  |  |
| --- | --- |
| A. | Calculate the arc price elasticity implied by the initial response to Z-Best's price increase. |
| B. | Calculate the effective price reduction resulting from the coupon promotion. |
| C. | In light of this price reduction, and assuming no change in the price elasticity of demand, calculate Z-Best's arc advertising elasticity. |
| D. | Why might the true arc advertising elasticity differ from that calculated in Part C? |