1. The estimated demand curve for a firm’s product is represented by the equation:



where  is the quantity sold per year and  is the price per unit.

(a) Based on the estimated demand curve, write the equations for Solis’

1. total revenue
2. average revenue
3. marginal revenue

(b) What is the maximum total revenue per year that the firm can obtain from sales of its product? (Give the exact dollar amount and show how you determined it.)

(c) Calculate the point price elasticity of demand for the firms’ product when. Is the demand elastic or inelastic at that quantity? How do you know?

2. Wonder bread is a normal good produced by the Wonder Bakery. Using clearly labeled Demand and Supply curves, show what will happen to the equilibrium price and quantity of Wonder bread in each of the following situations?

(a) Due to a recession, households that buy Wonder bread experience a decrease in income.

(b) The cost of wheat used in Wonder bread increases significantly.

(c) Wonder Bakery buys improved ovens that reduce the costs of Wonder bread.

(d) Lovely Loaf, a rival, cuts the price of its bread.

(e) Consumers become health conscious and switch to low-calorie breads.

(f) Situations (a) and (b) occur at the same time.

3. (a) Suppose a perfectly competitive firm has the following total cost function for the short run:



Determine its profit-maximizing output and profit for the short run, given the market price of its product is P=$500 per unit.

(b) Now disregard the proceeding cost function, and suppose its long-run total cost is:



Indicate the firm’s long-run price, quantity sold, and profit, assuming the industry is in long-run equilibrium.

4. Annetta receives utility from hot dogs and pizza slices according to the following weekly schedule. A hot dog costs 50¢ and a slice pizza costs $1.00.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Pizza Slices** | | | |  |  | **Hot Dogs** | | | |
|  | ***TU*** | ***MU*** |  | ***MU/$*** |  | **<-units consumed->** | ***TU*** | ***MU*** |  | ***MU/$*** |
|  | 20 |  |  |  |  | 1 | 12 |  |  |  |
|  | 36 |  |  |  |  | 2 | 22 |  |  |  |
|  | 50 |  |  |  |  | 3 | 31 |  |  |  |
|  | 62 |  |  |  |  | 4 | 39 |  |  |  |
|  | 72 |  |  |  |  | 5 | 45 |  |  |  |
|  | 80 |  |  |  |  | 6 | 49 |  |  |  |
|  | 86 |  |  |  |  | 7 | 52 |  |  |  |
|  | 90 |  |  |  |  | 8 | 54 |  |  |  |
|  | 91 |  |  |  |  | 9 | 55 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

(a) Complete the “marginal utility” and “marginal utility per dollar” columns for each good.

(b) Sally’s income is $8.00. Assuming that no half units may be bought, how many slices of pizza and how many hot dogs should she consume to maximize her utility?

(c) What would be Sally’s total utility?

(d) She wouldn’t buy 5 slices of pizza and 7 hot dogs. Why not?

(e) It would be possible for Sally’s total utility to increase if conditions changed. Give three examples of ways in which conditions could change so that Sally’s utility would be greater than before.

(f) Sally’s income rises from $8.00 to $10.50. Calculate the utility-maximizing combination of goods.

(g) Are pizza slices “normal” goods for Sally?

5. US data have shown that insurance costs have increased more rapidly than other prices. You are asked to show how rising insurance costs have affected consumer alternatives. Suppose X represents the quantity of insurance services, and Y represents the quantity of other goods. in addition, let income (*M*) be measured in hundreds of dollars, the price of insurance services and other goods in terms of dollars per minute, with M = 150, PX = 5, and PY = 4.

(a) Graph the budget line. Determine the slope of the budget line.

(b) In your graph show the opportunity set.

(c) If PX  doubles, what happens to the budget constraint. Show this effect in your graph. What is the new slope of the budget line?

(d) What is the meaning of the slope of the two budget constraints?