1a. A company sells car batteries for $80 each and expects to sell 200,000 units. The variable costs is $28 and fixed costs is $1,000,000. Estimate the break-even point.

1b. If the price is increased to $90, the company expects to lose 10% in sales. Determine the demand curve and the profit function.

1c. Using marginal analysis, determine the price that generates the maximum profits.

2a. Assume the economy consists of the production of only three products: TVs, computers and eateries. Determine the real GDP in 2015 using the data below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **REAL GDP Value Production in Adjacent Years** | | | |
|  |  |  |  |  |
| **2104** |  | **Quantity** | **Price** | **Expenditure** |
|  |  | **(in millions)** | **(dollars)** | **(millions of dollars** |
| **C** | **TVs** | 1000 | $ 500.00 | $ 500,000.00 |
| **I** | **Computers** | 500 | $ 500.00 | $ 250,000.00 |
| **G** | **Eateries** | 2000 | $ 200.00 | $ 400,000.00 |
| **Y** | **Real and Nominal GDP** | |  | $ 1,150,000.00 |
|  |  |  |  |  |
|  |  |  |  |  |
| **2015** |  | **Quantity** | **Price** | **Expenditure** |
|  |  | **(in millions)** | **(dollars)** | **(millions of dollars** |
| **C** | **TVs** | 1200 | $ 350.00 | $ 420,000.00 |
| **I** | **Computers** | 600 | $ 400.00 | $ 240,000.00 |
| **G** | **Eateries** | 2200 | $ 175.00 | $ 385,000.00 |
| **Y** | **Real and Nominal GDP** | |  | $ 1,045,000.00 |

3a.

1. Assume the demand function for computers at a retail store has been estimated as follows:



Q = 25,000 – 35(P) + 0.65(I) + 50(CP) + .225(A)

Where Q = quantity of computers demanded, I = Income, C = average price of computers at other stores, and A = advertising expense.

1. If average advertising spending is $40,000, the average price of computers at other stores is $350, and the average income of customers purchasing computers is $60,000, estimate the demand curve for computers at the store?
2. Estimate the price elasticity of demand at the price of $300. Use $325 to determine the change in price.
3. Would you characterize computers as price elastic or price inelastic, based on the above information?