

Problem Set 1.7

Marginal Utility Problem

Assume that Czar Xavier finds only three goods, A, B, and C, for sale in Xavierland. The utility levels gained from the consumption of these goods are shown in the following table. Calculate the marginal utility values and enter them in the table.

| QUANTITY | GOOD A | | GOOD B | | GOOD C | |
|----------|---------------|------------------|---------------|------------------|---------------|------------------|
| | TOTAL UTILITY | MARGINAL UTILITY | TOTAL UTILITY | MARGINAL UTILITY | TOTAL UTILITY | MARGINAL UTILITY |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 30 | _____ | 10 | _____ | 25 | _____ |
| 2 | 55 | _____ | 18 | _____ | 45 | _____ |
| 3 | 70 | _____ | 25 | _____ | 57 | _____ |
| 4 | 83 | _____ | 31 | _____ | 67 | _____ |
| 5 | 90 | _____ | 36 | _____ | 75 | _____ |
| 6 | 95 | _____ | 40 | _____ | 82 | _____ |
| 7 | 95 | _____ | 43 | _____ | 87 | _____ |

Use the marginal utility data for Goods A, B, and C obtained in the table above to calculate the marginal utility per dollar for Goods A, B, and C. The prices of Goods A, B, and C are \$7, \$1, and \$10 respectively. Enter these values in the table below.

| QUANTITY | GOOD A | GOOD B | GOOD C |
|----------|-----------------------------|-----------------------------|-----------------------------|
| | MARGINAL UTILITY PER DOLLAR | MARGINAL UTILITY PER DOLLAR | MARGINAL UTILITY PER DOLLAR |
| 1 | _____ | _____ | _____ |
| 2 | _____ | _____ | _____ |
| 3 | _____ | _____ | _____ |
| 4 | _____ | _____ | _____ |
| 5 | _____ | _____ | _____ |
| 6 | _____ | _____ | _____ |
| 7 | _____ | _____ | _____ |

1. If the Czar wanted to maximize his utility, why would he not buy only Good B, as it is the least expensive?
2. If the Czar wanted to maximize his utility, why would he not buy only Good A, as it yields the highest total utility?
3. How would the Czar correctly determine the utility-maximizing amounts of Goods A, B, and C to purchase?
4. What would be the optimal amounts of Goods A, B, and C to purchase if the Czar had \$48 to spend?