

What is Utility Maximization?

Worksheet

Utility maximization occurs when a consumer's marginal utility per dollar is equal across all goods purchased— $MU_A/P_A = MU_B/P_B$. This balances satisfaction per unit spent.

$$MU_A/P_A = MU_B/P_B$$

MU_A = Marginal utility of good A (utility units)

P_A = Price of good A (dollars)

MU_B = Marginal utility of good B (utility units)

P_B = Price of good B (dollars)

Questions

1. Utility is maximized when...

- A) You spend all your money
- B) MU per dollar is equal across goods
- C) You buy the cheapest items
- D) You buy the most popular brand

2. A pizza slice ($MU = 20$, price 4) vs a drink ($MU = 8$, price 2). Which is better value?

- A) Pizza: $20/4 = 5$
- B) Drink: $8/2 = 4$
- C) They're equal
- D) Cannot tell without budget

3. If $MU_A/P_A = 6$ and $MU_B/P_B = 8$, you should...

- A) Buy only B
- B) Buy only A
- C) Shift spending from A to B
- D) Stop consuming

4. Rational consumers seek to maximize...

- A) Quantity purchased
- B) Money spent
- C) Total satisfaction (utility) within budget
- D) Time spent shopping

5. You have \$12 and can buy apples (2 each, $MU = 10$) or bananas (3 each, $MU = 12$). Allocate to maximize utility.

6. Coffee ($MU = 15$, price 2) vs juice ($MU = 12$, price 1.50). Which maximizes utility?

7. Your MU/P ratio for pizza is 3 and for tacos is 2. Are you maximizing utility?

8. Define: What is utility maximization?

9. Define: What must be equal at maximization?

10. Define: If $MU_A/P_A > MU_B/P_B$, what should you do?

Answer Key

1. B) MU per dollar is equal across goods — Maximization requires $MU_A/P_A = MU_B/P_B$ to balance value per dollar.
2. A) Pizza: $20/4 = 5$ — Pizza = 5 utility per dollar; drink = 4. Pizza offers more value.
3. C) Shift spending from A to B — B gives more value per dollar, so reallocate from A to B until ratios equalize.
4. C) Total satisfaction (utility) within budget — Rational behavior = maximize utility subject to budget constraint.
5. Check MU per dollar: Apples: $10/2 = 5$ utility per dollar. Bananas: $12/3 = 4$ utility per dollar. Apples give more value, so buy more apples. Buy 6 apples (costs \$12) = 60 utility. Alternative: 4 apples + 1 banana = $40 + 12 = 52$ utility. Optimal: 6 apples.
6. Coffee MU per dollar: $15/2 = 7.5$. Juice MU per dollar: $12/1.50 = 8$. Juice offers better value per dollar, so choose juice.
7. No — ratios are unequal ($3 \neq 2$). To maximize, shift spending from tacos (lower value) to pizza (higher value) until ratios equal.
8. Choosing purchases to maximize total satisfaction within a budget by equalizing marginal utility per dollar.
9. Marginal utility per dollar (MU/P) across all goods purchased.
10. Buy more of A and less of B until the ratio equalizes.

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