

# What is Diminishing Marginal Utility?

## Worksheet

Diminishing marginal utility is the economic principle that each additional unit of a good consumed yields less satisfaction than the previous unit, assuming constant conditions.

$$MU_n = TU_n - TU_{n-1}$$

$MU_n$  = Marginal Utility of unit n (utils or satisfaction)

$TU_n$  = Total Utility at unit n (utils)

$TU_{n-1}$  = Total Utility at unit n-1 (utils)

## Questions

1. The law of diminishing marginal utility means...

- A) total utility always decreases
- B) each additional unit brings less extra satisfaction
- C) all goods cause dissatisfaction
- D) price must fall with quantity

2. If TU goes 10→18→24→28, what is MU of the 4th unit?

- A) 28 utils
- B) 4 utils
- C) 10 utils
- D) 6 utils

3. Diminishing MU explains why...

- A) the demand curve slopes downward
- B) prices are fixed
- C) there is no scarcity
- D) income is irrelevant

4. At satiation point, MU...

- A) is maximum
- B) equals zero
- C) is positive and growing
- D) is undefined

5. A student drinks coffee. 1st cup brings 10 utils, 2nd brings 8 utils, 3rd brings 5 utils. What is the marginal utility of the 3rd cup?

6. Total utility from 4 ice creams is 20 utils. From 5 ice creams it is 23 utils. Find marginal utility of the 5th.

7. Marginal utility falls from 12 to 9 to 6 to 3 utils for units 1-4. At what point does  $MU = 0$  (satiation)?

8. Define: Law of diminishing marginal utility?

9. Define: Why does MU diminish?

10. Define: Difference between total and marginal utility?

## Answer Key

1. B) each additional unit brings less extra satisfaction — MU is the \*extra\* satisfaction; even if MU diminishes, TU can still increase.
2. B) 4 utils —  $MU_4 = TU_4 - TU_3 = 28 - 24 = 4$  utils.
3. A) the demand curve slopes downward — Lower MU at higher quantities → lower willingness-to-pay → downward-sloping demand.
4. B) equals zero — Satiation = no further benefit from one more unit →  $MU = 0$  → beyond that, MU is negative.
5.  $MU_3 = TU_3 - TU_2 = (10+8+5) - (10+8) = 23 - 18 = 5$  utils
6.  $MU_5 = TU_5 - TU_4 = 23 - 20 = 3$  utils
7. Pattern: MU decreases by 3 each time  $MU_5 = 0$  utils Satiation (no more benefit) occurs at unit 5 or beyond
8. Each extra unit consumed yields less satisfaction than the previous unit.
9. Basic human need satisfaction: first unit is essential; later units are redundant and less valued.
10. Total utility (TU) = cumulative satisfaction; Marginal utility (MU) = extra satisfaction from one more unit.

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