# Microeconomics, Review Notes
# September 17, 2025

**Keywords:** Marginal utility, Indifference curves, Marginal Rate of Substitution, Budget constraints, Constrained utility maximization

**Concept check Q1.** A consumer's utility function on ale and bread is given as $U(a, b) = a + b^{0.5}$.

(1) Derive the marginal utility of bread.

(2) Draw an indifference curve that gives the utility value of 4.

(3) What's the marignal rate of subsitution of ale and bread when a consumer consumes 2 units of ale and 4 units of bread?

**Concept check Q2.** A consumer is about to buy ale and bread. The unit prices of ale and bread are \$3 and \$5, respectively, and his income is \$60.

(1) Check if 4 units of ale and 8 units of bread are feasible.

(2) Draw a budget constraint on the ale–bread plane.

(3) Suppose all the prices are doubled, and the income is doubled as well. Draw a budget constraint.

**Concept check Q3.** A consumer's utility function on ale and bread is given as $U(a, b) = a + b^{0.5}$. The unit prices of ale and bread are \$3 and \$5, respectively, and his income is \$60.

(1) Find the optimal consumption bundle that maximizes his utility.

(2) Suppose the bread price is increased to \$6. Find the new optimal consumption bundle.