

NCERT CHAPTER 5

Linear Inequalities

Algebraic solutions, sign-reversal rule, double inequalities, and graphical representation on the real line.

⌚ Revision Time: 20 mins 🎯 Target: 4–5 Marks 📖 Textbook: [kemh105.pdf](#)

⚡ Essential Formulas & Concept Summary

1. SIGN REVERSAL RULE

$$\text{If } a < b \text{ and } k < 0 \implies ka > kb \quad \text{(INEQUALITY REVERSAL)}$$

$$-x < 5 \implies x > -5$$

2. REPLACEMENT SETS

- Real line ($x \in \mathbb{R}$): Interval format, e.g. $(-\infty, 2]$.
- Integers ($x \in \mathbb{Z}$): Discrete set, e.g. $\{\dots, -1, 0, 1, 2\}$.
- Natural numbers ($x \in \mathbb{N}$): $\{1, 2\}$.

🎯 Top Expected Exam Questions (Step-by-Step Solutions)

Question 1: Fraction Inequality

3–4 Marks

Solve for real x : $\frac{2x - 1}{3} \geq \frac{3x - 2}{4} - \frac{2 - x}{5}$

Question 2: Double Inequality

3 Marks

Solve for real x : $-5 \leq \frac{5 - 3x}{2} \leq 8$

 Exam Traps & Silly Mistakes **Trap 1: Forgetting to Flip Inequality**

Dividing by negative numbers always flips the inequality symbol.

 Quick Self-Check

Quiz 1: If $-4x < 12$, what is the solution for x ?