Understanding Inequality Symbols and Solving Inequalities

KS4 MATHEMATICS KS3 MATHEMATICS Ages 11-14 ⏰ 3 min read

What Are Inequality Symbols?

In maths, an **inequality** is a statement that compares two things and shows that they are **not equal**. Instead of using the equals sign (=), we use special symbols to show the relationship between numbers.

The main inequality symbols are: **<** (less than), **>** (greater than), **≤** (less than or equal to), and **≥** (greater than or equal to).

Think of it like comparing pocket money. If you have £5 and your friend has £8, you could say your money is < (less than) theirs. If you both have at least £5, you could say you both have ≥ (greater than or equal to) £5.

How Are Inequalities Different from Equations?

An **equation** uses an equals sign and shows that two things are exactly the same: $3 + 2 = 5$. An **inequality** shows a range of possible answers. For example, $x > 5$ means x could be 6, 7, 8, 100 — anything bigger than 5, but never 5 itself.

How Do You Solve Inequalities?

Solving inequalities is almost identical to solving equations. You use the same steps: get the unknown letter by itself on one side. For example, if you have $x + 3 > 10$, subtract 3 from both sides to get $x > 7$.

There is one important rule to remember: when you multiply or divide both sides by a **negative number**, you must flip the inequality symbol. So if you have $-2x < 8$, and you divide by -2, it becomes $x > -4$.

Think of it like a seesaw. If one side is heavier (>), and you put the same weight on both sides, that relationship stays true. But if you reverse one side (multiply by a negative), the lighter side is now heavier, so you flip your comparison.

Drawing Inequality Solutions

You can show inequality answers on a **number line**. If $x > 5$, you draw a circle on 5 (open, because 5 is not included) and shade everything to the right. If $x \geq 5$, you fill in the circle (because 5 is included) and shade right.

Inequalities help us describe ranges and limits in real life, from temperature ranges to safety limits on equipment.

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