



# Understanding Inequality Symbols and Solving Inequalities

KS4 MATHEMATICS

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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),  $\leq$  (less than or equal to), and  $\geq$  (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  $\geq$  (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.