

7th Standard- Maths

Simple Equations

An equation is a condition on a variable. A variable is something that can vary. It assumes different numerical values; its value is not fixed. These are usually denoted by letters of the english alphabet, such as x, y, z, l, m, n, p, etc. From variables, we form expression by performing operation like addition, subtraction, multiplication and division on them.

What Equation Is?

An equation is a condition on a variable. The condition is that two expressions should have equal value. Note at least one of the two expressions must contain the variable.

An equation remains the same when the expressions on the left and on the right are interchanged. This property is often useful in solving equations.

Solving an Equation

For any balanced numerical equation, if we either:

- add the same number to both sides,
- or subtract the same number from both sides,
- or multiply by the same number to both sides,
- or divide by the same number both its sides, the balance is undisturbed.

More Equations

Transposing means moving to the other side. It has the same effect as adding the same number to (or subtracting the same number from) both sides of the equation.

When we transpose a number from one side of the equation to the other side, we change its sign.

Applications of Simple Equations to Practical Situations

We know how to convert statements in everyday language into simple equations. To solve the problems (or puzzles), we have to solve these equations by the usual method.

Equations involving only a linear polynomial are called simple equations.

e.g. $4x + 5 = 65$, $10y - 20 = 50$

In an equation, there is always an equality sign.

A Simple Equation remains the same when the expression in the left and right are interchanged.

The value of a variable, which makes the equation a true statement is called the solution of a linear equation.

e.g. $5x - 12 = -2$ is a equation

L.H.S = $5x - 12 = 5 \times 2 - 12 = 10 - 12 = -2$

L.H.S = R.H.S

In the case of the balanced equation, we have

- add the same number to both the sides,
- subtract the same number from both the sides
- multiply both sides by the same number
- divide both sides by the same number, the balance remains undisturbed, ie. The value of the LHS remains equal to the value of the RHS.

Transposing means moving to the other side. Transposition of a number has the same effect as adding the same number to (or subtracting the same number from) both sides of the equation. When you transpose a number from one side of the equation to the other side, you change its sign.

For example, transposing +3 from the LHS to the RHS in equation $x + 3 = 8$ gives $x = 8 - 3 = 5$.