

A quantity and its $\frac{1}{7}$
part become 19. What
is the quantity?

Rhind Papyrus (1650BC)

Hisab **al-jabr**

w'al-musqabalah

(The Science of Transposition and Cancellation)

al-Khowarizmi (Baghdad, AD 825)

Diophantus
Brahmagupta
al-Khowarizmi
Bhashkara
Leonardo Fibonacci
Francois Viete
Rene Descartes
Carl Friedrich Gauss
Leonard Euler
Edvard Samuel Bring

Joseph Louis
Lagrange
Paola Ruffini
Niels Henrick Abel
August Leopold
Crelle
Everist Galois
David Hilbert
Amalie Noether
James Gregorie
Norbert Weiner

Alan Turing
Johann Neumann
Stephen Wolfram

An **equation** is a statement which shows, in mathematical symbols, that two mathematical expressions are equal.

An **identity** is a statement of equality that holds true for **all values** of the variables in a universal set.

A **conditional equation** is true for only **certain values**.

The **roots of the equation** or the **solutions of the equation** are the numerical values that make the equation true.

Solving Linear Equations

Linear Equations are the simplest form of equation.

Polynomial Equations

Linear Equations with Rational Coefficients

$$3x-2x-4x+2x+3x = 4x+4-2x-3x+1+5-4x+2x+3x$$

The equation:

$$3x-2x-4x+2x+3x = 4+1+5$$

$$3x-(2x+1)-5=4x+(4-2x)-3x$$

- Combine the sides

is solved in the following manner:

$$2x = 10;$$

- Remove the brackets

$$x = 5$$

$$3x-2x-1-5 = 4x+4-2x-3x$$

- Transpose the terms to get x terms=numbers

$$3x-2x-1-5 +1 +5 = 4x+4-2x-3x +1 +5$$

$$3x-2x = 4x+4-2x-3x+1+5$$