

# Calculation operators and order of operations

Operators specify the type of calculation that you want to perform on the elements of a formula. Excel performs calculations in a standard order, but you can also control the order of calculations.

## ▼ Arithmetic operators

To perform basic mathematical operations (such as addition, subtraction, or multiplication), combine numbers, and produce numeric results, use the following arithmetic operators.

Arithmetic operator	Meaning (example)
+ (Plus sign)	Addition (3+3)
- (Minus sign)	Subtraction (3-1) or negation (-1)
* (Asterisk)	Multiplication (3*3)
/ (Forward slash)	Division (3/3)
% (Percent sign)	Percent (20%)
^ (Caret)	Exponentiation (3^2)

## ▼ Comparison operators

You can compare two values with the following operators. When two values are compared by using these operators, the result is a logical value either TRUE or FALSE.

Comparison operator	Meaning (example)
= (Equal sign)	Equal to (A1=B1)
> (Greater than sign)	Greater than (A1>B1)
< (Less than sign)	Less than (A1<B1)
>= (Greater than or equal to sign)	Greater than or equal to (A1>=B1)
<= (Less than or equal to sign)	Less than or equal to (A1<=B1)
<> (Not equal to sign)	Not equal to (A1<>B1)

## ▼ Join operator

Use the ampersand (&) to join one or more text strings to produce a single piece of text.

Join operator	Meaning (example)
& (Ampersand)	Joins two values to produce one continuous text value ("North"&"west")

## ▼ Reference operators

Combine ranges of cells for calculations with the following operators.

Reference operator	Meaning (example)
: (Colon)	Range operator, which produces one reference to all the cells between two references, including the two references (B5:B15)
, (Comma)	Union operator, which combines multiple references into one reference (SUM(B5:B15,D5:D15))
(Single space)	Intersection operator, which produces one reference to cells common to the two references (B7:D7 C6:C8)

## ► Order of operations in formulas

## ► How Excel converts values in formulas