



## Scientific Calculator

### Description

This Scientific Calculator step provides you with predefined all scientific calculations with some additional functions that can be executed on input field values. If need other generic, often used functions, visit us at [www.techextensor.com](http://www.techextensor.com) or drop a mail at [nitesh.solanki@techextensor.com](mailto:nitesh.solanki@techextensor.com).

**Note:** *The execution speed of the Scientific Calculator is far better than the speed provided by custom scripts (JavaScript).*

Besides the arguments (Field A, Field B and Field C) you must also specify the return type of the function. You can also choose to remove the field from the result (output) after all values are calculated; this is useful for removing temporary values.

### Function List

The table below contains descriptions associated with the Scientific Calculator step:

Function	Description	Required fields
Set field to constant A	Create a field with a constant value.	A
Create a copy of field A	Create a copy of a field with the given field value.	A
A + B	A plus B.	A and B
A - B	A minus B.	A and B
A * B	A multiplied by B.	A and B

$A / B$	A divided by B.	A and B
$A * A$	The square of A.	A
$\text{SQRT}(A)$	The square root of A.	A
$100 * A / B$	Percentage of A in B.	A and B
$A - (A * B / 100)$	Subtract B% from A.	A and B
$A + (A * B / 100)$	Add B% to A.	A and B
$A + B * C$	Add A and B times C.	A, B and C
$A + B + C$	Add A, B and C.	A, B and C
$\text{SQRT}(A*A + B*B)$	Calculate $(A^2 + B^2)$ .	A and B
$\text{ROUND}(A)$	Returns the closest Integer to the argument. The result is rounded to an Integer by adding 1/2, taking the floor of the result, and casting the result to type int. In other words, the result is equal to the value of the expression: floor (a + 0.5). In case you need the rounding method "Round half to even", use the following method $\text{ROUND}(A, B)$ with no decimals ( $B=0$ ).	A
$\text{ROUND}(A, B)$	Round A to the nearest even number with B decimals. The used rounding method is "Round half to even", it is also called unbiased rounding, convergent rounding, statistician's rounding, Dutch rounding, Gaussian rounding, odd-even rounding, bankers' rounding or broken rounding, and is widely used in bookkeeping. This is the default rounding mode used in IEEE 754 computing functions and operators. In Germany it is often called "Mathematisches Runden".	A and B
$\text{STDROUND}(A)$	Round A to the nearest integer. The used rounding method is "Round half away from zero", it is also called standard or common rounding. In Germany it is known as "kaufmännische Rundung" (and defined in DIN 1333).	A
$\text{STDROUND}(A, B)$	Same rounding method used as in $\text{STDROUND}(A)$ but with B decimals.	A and B

CEIL( A )	The ceiling function map a number to the smallest following integer.	A
FLOOR( A )	The floor function map a number to the largest previous integer.	A
NVL( A, B )	If A is not NULL, return A, else B. Note that sometimes your variable won't be null but an empty string.	A and B
Remainder of A / B	Remainder value while dividing A with B	A and B
Volume of Cuboid	Cuboid Volume calculated as ( $l*b*h$ ; $l=A, b=B, h=C$ )	A, B and C
Curved Surface Area of Cuboid	Cuboid Curved Surface Area calculated as ( $2*l*h + 2*b*h$ ; $l=A, b=B, h=C$ )	A, B and C
Total Surface Area of Cuboid	Cuboid Total Surface Area calculated as ( $2*l*h + 2*b*h + 2*l*b$ ; $l=A, b=B, h=C$ )	A, B and C
Volume of Cube	Cube Volume calculated as ( $a*a*a$ ; $a=A$ )	A
Curved Surface Area of Cube	Cube Curved Surface Area calculated as ( $4*a*a$ ; $a=A$ )	A
Total Surface Area of Cube	Cube Total Surface Area calculated as ( $6*a*a$ ; $a=A$ )	A
Volume of Cylinder	Cylinder Volume calculated as ( $\pi*r*r*h$ ; $r=A, h=B$ )	A and B
Curved Surface Area of Cylinder	Cylinder Curved Surface Area calculated as ( $2*\pi*r*h$ ; $r=A, h=B$ )	A and B
Total Surface Area of Cylinder	Cylinder Total Surface Area calculated as ( $2*\pi*r (h+r)$ ; $r=A, h=B$ )	A and B
Volume of Cone	Cone Volume calculated as ( $(1/3)*\pi*r*r*h$ ; $r=A, h=B$ )	A and B
Curved Surface Area of Cone	Cone Curved Surface Area calculated as ( $\pi*r*l$ ; $r=A, l=B$ )	A and B

Total Surface Area of Cone	Cone Total Surface Area calculated as ( $\pi r(l+r)$ ; $r=A$ , $l=B$ )	A and B
Volume of Sphere	Sphere Volume calculated as ( $(\frac{4}{3})\pi r^3$ ; $r=A$ )	A
Curved Surface Area of Sphere	Sphere Curved Surface Area calculated as ( $4\pi r^2$ ; $r=A$ )	A
Total Surface Area of Sphere	Sphere Total Surface Area calculated as ( $4\pi r^2$ ; $r=A$ )	A
Volume of Hemisphere	Hemisphere Volume calculated as ( $(\frac{2}{3})\pi r^3$ ; $r=A$ )	A
Curved Surface Area of Hemisphere	Hemisphere Curved Surface Area calculated as ( $2\pi r^2$ ; $r=A$ )	A
Total Surface Area of Hemisphere	Hemisphere Total Surface Area calculated as ( $3\pi r^2$ ; $r=A$ )	A
Convert Binary to Octal	Convert a number from Binary to Octal format	A
Convert Binary to Decimal	Convert a number from Binary to Decimal	A
Convert Binary to Hexadecimal	Convert a number from Binary to Hexadecimal	A
Convert Octal to Binary	Convert a number from Octal to Binary	A
Convert Octal to Decimal	Convert a number from Octal to Decimal	A
Convert Octal to Hexadecimal	Convert a number from Octal to Hexadecimal	A

Convert Decimal to Binary	Convert a number from Decimal to Binary	A
Convert Decimal to Octal	Convert a number from Decimal to Octal	A
Convert Decimal to Hexadecimal	Convert a number from Decimal to Hexadecimal	A
Convert Hexadecimal to Binary	Convert a number from Hexadecimal to Binary	A
Convert Hexadecimal to Octal	Convert a number from Hexadecimal to Octal	A
Convert Hexadecimal to Decimal	Convert a number from Hexadecimal to Decimal	A
Natural Log : $\ln(A)$	Natural log calculated as $\log_e(x) : x = A$	A
Sin of A : $\sin(A)$	Sine of angle A	A
Cos of A : $\cos(A)$	Cosine of angle A	A
Tan of A : $\tan(A)$	Tangent of angle A	A
Square Root of A	Square root of A calculated as $\sqrt[A]{A}$ or $A^{1/2}$	A
Square of A	Square of A calculated as $A^2$ or $A * A$	A
A under root B	Root of A with base B, calculated as $\sqrt[B]{A}$ or $A^{1/B}$	A and B
A power B	Value of A to power B calculated as $A^B$	A and B

Percentage ( B out of A )	Percentage for B out of A calculated as ( 100 * B ) / A	A
Factorial of A : A!	Factorial of A calculated as ( A * (A-1) * (A-2) ..... * 1 )	A

## Snapshots

