

Object REXX for Linux



REXX Mathematical Functions (RxMath)

Version 2.2

Note!

Before using this information and the product it supports, be sure to read the general information under “Appendix. Notices” on page 11.

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This edition applies to Version 2.2 of IBM® Object REXX for Linux, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

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Chapter 1. Introduction

RxMath is a REXX utility package that enables you to use enhanced mathematical functions.

The function names in the REXX Mathematical Functions package are similar to the names of their corresponding mathematical functions.

The precision of calculation depends on:

- The value specified when the command is issued
- The numeric digits settings of the calling REXX activity

Note: Precision is limited to 16 digits.

Installation and Removal

The REXX Mathematical Functions package is contained in the file **librxmath.so**. This library must be placed in a directory listed in your LIBPATH. To get access to the functions in the REXX Mathematical Functions package, execute the following REXX code:

```
call RxFuncAdd"MathLoadFuncs","rxmath","MathLoadFuncs"
call MathLoadFuncs
```

To unload the library, call the MathDropFuncs function and then exit all CMD.EXE shells. After you have exited from all command shells, the library is dropped by Linux and can be deleted or replaced.

Error Handling

Error 40 (**Incorrect call to routine**) is raised if either the wrong number of arguments or incorrect data is passed to a function.

If a mathematical function fails, the REXX Mathematical Functions package returns ERROR.

Where an error occurs, the variable MATHERRNO is set with additional information that further defines the source of the error.

Chapter 2. Functions

Most function names in the REXX Mathematical Functions package are similar to the names of their corresponding mathematical functions.

- MathLoadFuncs()
- MathDropFuncs()
- RxCalcSqrt()
- RxCalcExp()
- RxCalcLog()
- RxCalcLog10()
- RxCalcSinH()
- RxCalcCosH()
- RxCalcTanH()
- RxCalcPower()
- RxCalcSin()
- RxCalcCos()
- RxCalcTan()
- RxCalcCotan()
- RxCalcPi()
- RxCalcArcSin()
- RxCalcArcCos()
- RxCalcArcTan()

MathLoadFuncs()

►►—MathLoadFuncs ()———◄◄

Loads all functions in the REXX Mathematical Functions package.

If you supply any parameters, they will be used only to deliver copyright information.

MathDropFuncs()

►► MathDropFuncs() ◀◀

Drops all functions in the REXX Mathematical Functions package.

RxCalcSqrt()

►► RxCalcSqrt(*number* , *precision*) ◀◀

Returns the absolute value of the square root of *number*.

Parameters:

number

The number whose square root you wish to calculate.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcExp()

►► RxCalcExp(*number* , *precision*) ◀◀

Returns the exponential function of *number*.

Parameters:

number

The number for which you wish to calculate the exponential function.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcLog()

►► RxCalcLog(*number* , *precision*) ◀◀

Returns the natural logarithm (base e) of *number*.

Parameters:

number

The number for which you wish to calculate the natural logarithm.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcLog10()

►► RxCalcLog10(*number* , *precision*) ◀◀

Returns the base 10 logarithm of *number*.

Parameters:

number

The number for which you wish to calculate the base 10 logarithm.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcSinH()

►► RxCalcSinH(*number* , *precision*) ◀◀

Returns the hyperbolic sine of *number*, expressed in radians.

Parameters:

number

The number for which you wish to calculate the hyperbolic sine.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcCosH()

►► RxCalcCosH(*number* , *precision*) ◀◀

Returns the hyperbolic cosine of *number*, expressed in radians.

Parameters:

number

The number for which you wish to calculate the hyperbolic cosine.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcTanH()

►► RxCalcTanH(*number* , *precision*) ◄◄

Returns the hyperbolic tangent of *number*, expressed in radians.

Parameters:

number

The number for which you wish to calculate the hyperbolic tangent.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcPower()

►► RxCalcPower(*number1*, *number2* , *precision*) ◄◄

Returns the value of mathematical expression *number1* raised to the power of exponent *number2*.

Parameters:

number1

The mathematical expression to be raised to the power of exponent *number2*.

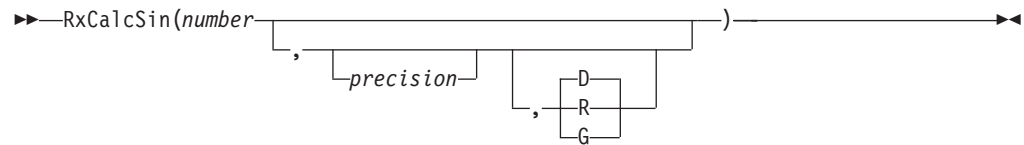
number2

The exponent to which *number1* is to be raised.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcSin()



Returns the sine value for *number*, where *number* is the angle size, expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The angle size, expressed in degree [D], radian [R], or grade [G] units.

precision

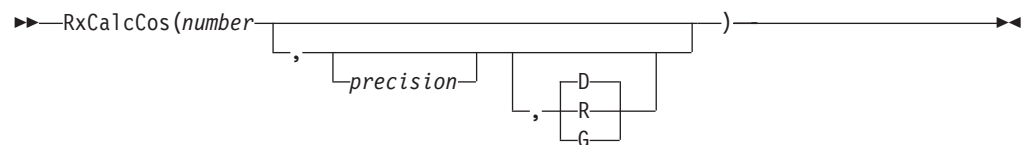
The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D Indicates that the angle size is expressed in degrees. This is the default.

R Indicates that the angle size is expressed in radians.

G Indicates that the angle size is expressed in grades.

RxCalcCos()



Returns the cosine value for *number*, where *number* is the angle size, expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The angle size, expressed in degree [D], radian [R], or grade [G] units.

precision

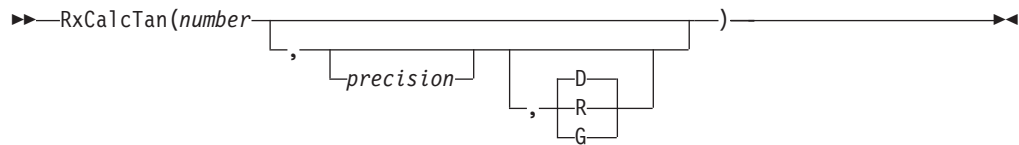
The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D Indicates that the angle size is expressed in degrees. This is the default.

R Indicates that the angle size is expressed in radians.

G Indicates that the angle size is expressed in grades.

RxCalcTan()



Returns the tangent value for *number*, where *number* is the angle size, expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The angle size, expressed in degree [D], radian [R], or grade [G] units.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D

Indicates that the angle size is expressed in degrees. This is the default.

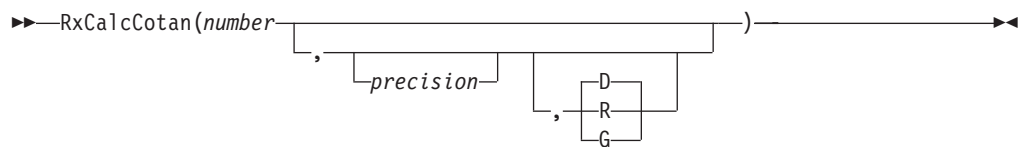
R

Indicates that the angle size is expressed in radians.

G

Indicates that the angle size is expressed in grades.

RxCalcCotan()



Returns the cotangent value for *number*, where *number* is the angle size, expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The angle size, expressed in degree [D], radian [R], or grade [G] units.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D

Indicates that the angle size is expressed in degrees. This is the default.

R

Indicates that the angle size is expressed in radians.

G

Indicates that the angle size is expressed in grades.

RxCalcPi()

►► RxCalcPi (precision) ►►

Returns the value of pi.

Parameter:

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

RxCalcArcSin()

►► RxCalcArcSin (*number* , precision ,

D
R
G

) ►►

Returns the arcsine of *number*, where the result can be expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The number for which the arcsine is to be calculated.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D Indicates that the result is expressed in degrees. This is the default.

R Indicates that the result is expressed in radians.

G Indicates that the result is expressed in grades.

RxCalcArcCos()

►► RxCalcArcCos (*number* , precision ,

D
R
G

) ►►

Returns the arccosine of *number*, where the result can be expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The number for which the arccosine is to be calculated.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D

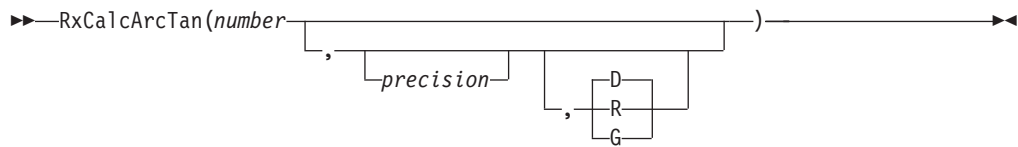
Indicates that the result is expressed in degrees. This is the default.

R

Indicates that the result is expressed in radians.

G

Indicates that the result is expressed in grades.

RxCalcArcTan()

Returns the arctangent of *number*, where the result can be expressed in degree [D], radian [R], or grade [G] units.

Parameters:

number

The number for which the arctangent is to be calculated.

precision

The precision of the calculation. If a value is not specified, the precision of the calling REXX activity is used. If the precision exceeds 16 digits, the call will fail.

D

Indicates that the result is expressed in degrees. This is the default.

R

Indicates that the result is expressed in radians.

G

Indicates that the result is expressed in grades.

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