Symbols/Operators

Name	Argument Type	Symbols	Example

Answer	not an operator	`ANS`	`? 7 + 2`
			`9`
			`? ANS * 2`
			`18`

Unary Negation	unary prefix	`-`	`-(10 + 2) = -12`
Addition	binary	`+`	`10 + 2 = 12`
Subtraction	binary	`-`	`7 - 8 = -1`
Multiplication	binary	`*`	`3 * 2 = 6`
Division	binary	`/`	`36 / 4 = 9`
Modulo	binary	`%`	`12 % 5 = 2`
Exp	unary prefix	`EXP`	`EXP2 = 7.3890`
Power	binary	`^, **`	`2^5 = 32`
Factorial	unary postfix	`!`	`5! = 120`
Double Factorial	unary postfix	`!!`	`7!! = 105`
Square Root	unary prefix	`SQRT`	`SQRT81 = 9`
Cube Root	unary prefix	`CBRT`	`CBRT-27 = -3`
Nth Root	binary	`ROOT`	`5ROOT32 = 2`
Natural Logarithm	unary prefix	`LN`	`LN2 = 0.6931`
Logarithm	binary	`LOG`	`2LOG32 = 5`
Pi	not an operator	`PI`	`PI = 3.1415`
E	not an operator	`E`	`E = 2.7182`
Tau	not an operator	`TAU`	`TAU = 6.2831`
Sine	unary prefix	`SIN`	`SINPI = 0`
Cosine	unary prefix	`COS`	`COSPI = -1`
Tangent	unary prefix	`TAN`	`TANPI = 0`
Inverse Sine	unary prefix	`ASIN`	`ASIN0 = 0`
Inverse Cosine	unary prefix	`ACOS`	`ACOS-1 = 3.1415`
Inverse Tangent	unary prefix	`ATAN`	`ATAN0 = 0`
Hyperbolic Sine	unary prefix	`SINH`	`SINH1 = 1.1752`
Hyperbolic Cosine	unary prefix	`COSH`	`COSH1 = 1.5430`
Hyperbolic Tangent	unary prefix	`TANH`	`TANH1 = 0.7615`
Inverse Hyperbolic Sine	unary prefix	`ASINH`	`ASINH1.1752 = 1`
Inverse Hyperbolic Cosine	unary prefix	`ACOSH`	`ACOSH1.5430 = 1`
Inverse Hyperbolic Tangent	unary prefix	`ATANH`	`ATANH0.7615 = 1`
Permutations	binary	`P`	`10 P 8 = 1814400`
Combinations	binary	`C`	`10 C 8 = 45`
Absolute Value	unary prefix	`ABS`	`ABS-3.2 = 3.2`

Recall X	not an operator	`RCL1, RCL2, RCL3, RCL4, RCL5, RCL6, RCL7, RCL8, RCL9`	`? /STO1 7`
			`7`
			`? /STO2 5`
			`5`
			`? RCL1 + RCL2 * 3`
			`22`

Order of Operations

Precedence	Operators
1	Unary Negation, Exp, Square Root, Cube Root, Natural Logarithm, Sine, Cosine, Tangent, Inverse Sine, Inverse Cosine, Inverse Tangent, Hyperbolic Sine, Hyperbolic Cosine, Hyperbolic Tangent, Inverse Hyperbolic Sine, Inverse Hyperbolic Cosine, Inverse Hyperbolic Tangent, Absolute Value
2	Factorial
3	Logarithm, Permutations, Combinations
4	Power, Nth Root
5	Multiplication, Division, Modulo
6	Addition, Subtraction

Commands

About

Shows information about EnderCalc.

Commands /about

Example

```
? /about
EnderCalc v1.2 by Sam Haskins
=============================
Open-source libaries:
libbf 20200119 by Fabrice Bellard
WinEditLine 2.206 by Paolo Tosco
minIni 1.2b by Thiadmer Riemersma
```

Binary Precision Set

Sets the precision of the binary engine (measured in bits).

Commands /bprec

Example

```
? /bprec 120
Binary engine precision: 120 bits
```

Clear Memory

Clears EnderCalc's persistent memory.

Commands /clearmem

Example

```
? /mem
MEM1 = 90
# [...]
MEM9 = 70
? /clearmem
Cleared memory.
? /mem
MEM1 = (empty)
# [...]
MEM9 = (empty)
```

Clear Memory Slot

Clears a single slot of memory.

Commands /clr1, /clr2, /clr3, /clr4, /clr5, /clr6, /clr7, /clr8, /clr9

Example

```
? /clr1
Cleared slot 1.
? /rcl1
MEM1 = (empty)
? /rcl2
MEM2 = 30
```

Debug Toggle

Toggles debug mode. When in debug mode, EnderCalc will display the parsed expression and the result from the binary engine.

Commands /debug

Example

```
? /debug
Debug: On
? 1 + 1
1 ADD 1
(Actual Result: 2.00000000000000000000000000)
2
? /debug
Debug: Off
```

Degrees/Radians Toggle

Toggles whether trigonometric operations use radians or degrees.

Commands /degrees, /radians

Example

```
? /degrees
Toggled, trigonometric functions now use degrees.
? sin180
0
? /radians
Toggled, trigonometric functions now use radians.
```

Decimal Precision Set

Sets the precision of the binary engine (measured in digits).

Commands /dprec

Example

```
? /dprec 25
Decimal engine precision: 25 digits
```

Format Toggle

Toggles suppression of scientific notation.

Commands /format

Example

```
? /format
Suppress Scientific Notation: On
? 1e-9
0.000000001
```

Format Last

Re-formats the last answer, using the inactive option for suppression of scientific notation.

Commands /formatlast, /last

Example

```
? 1e-9
1e-9
? /last
0.000000001
```

Help

Get help with EnderCalc.

Commands /help

Memory Show

Displays the contents of EnderCalc's persistent memory.

Commands /mem, /showmem

Example

```
? /sto1 78
78
? /sto7 89.9
89.9
? /mem
MEM1 = 78
MEM2 = (empty)
MEM3 = (empty)
MEM4 = (empty)
MEM5 = (empty)
MEM6 = (empty)
MEM7 = 89.9
MEM8 = (empty)
MEM9 = (empty)
```

Parse Debug Toggle

Toggles parser debug mode.

Commands /parsedebug

Example

```
? /parsedebug
Parse debug: On
? -(1 + 1)(2) * pi
match_brackets: - (1 + 1) (2)  * pi
tokenize: SUB (1 ADD 1) (2) MUL PI
constants: SUB (1 ADD 1) (2) MUL 3.14159265358979323846264338328
implicit_multiply: SUB (1 ADD 1) MUL (2) MUL
3.14159265358979323846264338328
unary_neg: NEG (1 ADD 1) MUL (2) MUL 3.14159265358979323846264338328
-12.566370614359172954
```

Precision

Sets a target precision for EnderCalc (measured in digits). The decimal engine's precision will be updated to reflect the new precision, and the binary engine's precision will be updated automatically to accommodate the request.

Commands /prec

Example

```
? /prec 50
Decimal engine precision: 50 digits
Binary engine precision: 250 bits
```

Recall Memory Slot

Recalls a single slot of memory.

Commands /rcl1, /rcl2, /rcl3, /rcl4, /rcl5, /rcl6, /rcl7, /rcl8, /rcl9

Example

```
? /sto1 1e9
1e9
? /sto7 78.3
78.3
? /rcl7
MEM7 = 78.3
? /rcl1
MEM1 = 1e9
```

Show Operating Parameters

Displays the current operating parameters of EnderCalc.

Commands /show

Example

```
? /show
Trigonometric functions use  : Radians
Debug                        : Off
Parse debug                  : Off
Timing                       : Off
Suppress Scientific Notation : Off
Binary engine precision      : 100 bits
Decimal engine precision     : 20 digits
```

Statistics

Calculate basic descriptive statistics on a data set (sample or population).

Commands /stats

Example

```
? /stats
(P)opulation or (S)ample? s
Dataset? 9 10|5 15|2 17 18 19 20
Dataset has 12 point(s).
Mean: 13.583333333333333
Variance: 17.356060606060606
Standard Deviation: 4.1660605619770586888
```

Store Memory Slot

Stores a single slot of memory.

Commands /sto1, /sto2, /sto3, /sto4, /sto5, /sto6, /sto7, /sto8, /sto9

Example

```
? /sto1 10
10
? /sto3 20
20
? rcl1 + rcl3
30
```

Time Toggle

Toggles timing of operations.

Commands `/time`

Example

```
? /time
Now timing math operations.
? 1e6!
8.263931688331240062 4e5565708
Command completed in 2399 ms.
```

Statistics Mode

Examples provided.

```
? /stats
(P)opulation or (S)ample? s
Dataset? 10 15 20 20
#[Evaluated as: 10 15 20 20]
Dataset has 4 point(s).
Mean: 16.25
Variance: 22.916666666666666667
Standard Deviation: 4.7871355387816905499

? /stats
(P)opulation or (S)ample? s
Dataset? 10 15 20|2
#[Evaluated as: 10 15 20 20]
Dataset has 4 point(s).
Mean: 16.25
Variance: 22.916666666666666667
Standard Deviation: 4.7871355387816905499

? /stats
(P)opulation or (S)ample? p
Dataset? 75|5 100|10 125|5
#[Evaluated as: 75 75 75 75 75 100 100 100 100 100 100 100 100 100
100 125 125 125 125 125]
Dataset has 20 point(s).
Mean: 100
Variance: 312.5
Standard Deviation: 17.67766952966368811

? /stats
(P)opulation or (S)ample? s
Dataset? 75|5 100|10 125|5
#[Evaluated as: 75 75 75 75 75 100 100 100 100 100 100 100 100 100
100 125 125 125 125 125]
Dataset has 20 point(s).
Mean: 100
Variance: 328.94736842105263158
Standard Deviation: 18.1369062527502918

? /stats
(P)opulation or (S)ample? p
Dataset? 1000|500 5000|200 3000|50
Dataset has 750 point(s).
Mean: 2200
Variance: 3093333.3333333333333
Standard Deviation: 1758.7874611030558895
```