Calculator Manual – Cheat Sheet

RESUME

The **lex** commands generates a lexical analyzer program that analyzes input and breaks it into tokens, such as numbers, letters, or operators. The tokens are defined by grammar rules set uo in the **lex** specification.
The **yacc** generates a parser that analyzes input using the tokens identified by the lexical analyzer and performs specified actions, such as flagging improper syntax. Together these commands generate a lexical analyzer and parser program for interpreting input and output handling.

Basic Operations

```
expression : expression PLUS expression
           | expression MINUS expression
           | expression TIMES expression
           | expression DIVIDE expression
```

SUMA ..... 1 + 1
RESTA ..... 1 - 1
MULTIPLICACION ..... 1 * 1
DIVISION ..... 1 / 1

MOD

expression : expression MOD expression

MOD OF ..... 2 % 2

POWER

expression : expression POW expression

POWER OF ..... 2 ∧ 2

FUNCTIONS

```
expression :
      FUNCTION LPAREN expression RPAREN
```

SINE ..... sen(1)
COSINE ..... cos(1)
TANGENT ..... tan(1)
INVERSE TANGENT ..... invtan(1)
INVERSE SINE ..... invsen(1)
INVERSE COSINE ..... invcos(1)
HIPERBOLIC TANGENT ..... tanh(1)
HIPERBOLIC COSINE ..... cosh(1)
HIPERBOLIC SINE ..... senh(1)
INVERSE HIPERBOLIC SINE ..... asenh(1)
INVERSE HIPERBOLIC COSINE .... acosh(1)
INVERSE HIPERBOLIC TANGENT . atanh(1)
LOGARITM BASE 10 ..... log10(1)
LOGARITM BASE 2 ..... log2(1)
SQUARE ROOT ..... sqrt(1)
NATURAL LOGARITM ..... ln(1) | nlog(1)

SET OPERATIONS

DEFINE A SET ..... A={1,2,3}
DEFINE A SET ..... B={3,4,5}
UNIVERSE **just type UNI** ..... {1,2,3,4,5}
INTERSECTION ..... $A \cap B$
..... {3}
UNION ..... $A \cup B$
..... {1,2,3,4,5}
SYMMETRIC DIFFERENCE ..... AgB
..... {1,2,4,5}
DIFFERENCE ..... $A \backslash B$
..... {1,2}
COMPLEMENT ..... A'
..... {4,5}
EMPTY SET ..... $\emptyset$
..... {$\emptyset$}

Important files

```
have a python3 version
install ply package with $pip install ply
Run the calculator $python calc.py
```

Links and information

```
https://www.dabeaz.com/ply/
https://www.dabeaz.com/ply/ply.html
```

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