

PostScript Programming

Stack - LIFO, like FORTH and RPN HP calculators:

```
12 6.3 -99 (Hi!) true /lit 1 2 pop -> 1
1 2 3 3 -1 roll
-> 2 3 1
```

| | | | | | |
|----|-----|-----|-------|-------|-------|
| 12 | 6.3 | -99 | (Hi!) | true | /lit |
| | 12 | 6.3 | | (Hi!) | true |
| | | 12 | | | (Hi!) |

Arithmetic (no parentheses, group with stack):

```
1 2 add -> 3      -1.5 abs -> 1.5
1 2 sub -> -1     3.5 neg -> -3.5
1 2 mul -> 2      30 sin -> 0.5
1 2 div -> 0.5    3 2 exp 4 2 exp add sqrt -> 5
8 3 mod -> 2      3 sqrt 1 atan -> 60
```

Variables and Dictionaries (look-up in current list):

```
/num 3 def -> -      /name (John) def -> -
num 4 mul -> 12     /str 10 string def -> -
/num num 1 add def  3.4 str cvs -> (3.4)
/ar [1 2 (Hi)] def  15 16 str cvs -> (F)
ar 2 get -> (Hi)    /mine 10 dict def -> -
```

Procedures (literal substitution):

```
/inch {72 mul} def -> -
3 inch -> 216
(72 mul) cvx -> {72 mul}
{inch dup} bind -> {72 mul dup}
```

Flow Control (conditions, loops, recursion):

```
1 2 eq -> false    true and false -> false
1 2 ne -> true     false {1} {2} ifelse -> 2
1 2 lt -> true     0 2 6 {} for -> 0 2 4 6
true {1} if -> true 16 2 {sqrt} repeat -> 2
```