

## Operand stack manipulation operators

any **pop** -  
any<sub>1</sub> any<sub>2</sub> **exch** any<sub>2</sub> any<sub>1</sub>  
any **dup** any any  
any<sub>1</sub> .. any<sub>n</sub> n **copy** any<sub>1</sub> .. any<sub>n</sub> any<sub>1</sub> .. any<sub>n</sub>  
any<sub>n</sub> .. any<sub>0</sub> n **index** any<sub>n</sub> .. any<sub>0</sub> any<sub>n</sub>  
any<sub>n-1</sub> .. any<sub>0</sub> n j **roll** any<sub>(j-1) mod n</sub> .. any<sub>0</sub> any<sub>n-1</sub> .. any<sub>j mod n</sub>  
# any<sub>1</sub> .. any<sub>n</sub> **clear** #  
# any<sub>1</sub> .. any<sub>n</sub> **count** # any<sub>1</sub> .. any<sub>n</sub> n  
- **mark** mark  
mark any<sub>1</sub> .. any<sub>n</sub> **cleartomark** -  
mark obj<sub>1</sub> .. obj<sub>n</sub> **counttomark** mark obj<sub>1</sub> .. obj<sub>n</sub> n

## Arithmetic and math operators

num<sub>1</sub> num<sub>2</sub> **add** num<sub>3</sub>  
num<sub>1</sub> num<sub>2</sub> **div** num<sub>3</sub>  
int<sub>1</sub> int<sub>2</sub> **idiv** int<sub>3</sub>  
int<sub>1</sub> int<sub>2</sub> **mod** remainder  
num<sub>1</sub> num<sub>2</sub> **mul** num<sub>3</sub>  
num<sub>1</sub> num<sub>2</sub> **sub** num<sub>3</sub>  
num<sub>1</sub> **abs** num<sub>2</sub>  
num<sub>1</sub> **neg** num<sub>2</sub>  
num<sub>1</sub> **ceiling** num<sub>2</sub>  
num<sub>1</sub> **floor** num<sub>2</sub>  
num<sub>1</sub> **round** num<sub>2</sub>  
num<sub>1</sub> **truncate** num<sub>2</sub>  
num<sub>1</sub> **sqrt** num<sub>2</sub>  
num den **atan** angle  
angle **cos** real  
angle **sin** real  
base exponent **exp** real  
num **ln** real  
num **log** real  
- **rand** int  
int **srand** -  
- **rrand** int

## Array operators

int **array** array  
- **[** mark  
mark obj<sub>0</sub> .. obj<sub>n-1</sub> **]** array  
array **length** int  
array index **get** any  
array index any **put** -  
array index count **getinterval** subarray  
array<sub>1</sub> index array<sub>2</sub> **putinterval** -  
array **aload** array<sub>0</sub> .. array<sub>n-1</sub> array  
any<sub>0</sub> .. any<sub>n-1</sub> array **astore** array  
array<sub>1</sub> array<sub>2</sub> **copy** subarray<sub>2</sub>  
array proc **forall** -

## Dictionary operators

int **dict** dict  
dict **length** int  
dict **maxlength** int  
dict **begin** -  
- **end** -  
key value **def** -  
key **load** value  
key value **store** -  
dict key **get** any  
dict key any **put** -  
dict key **known** bool  
key **where** *If found: dict true*  
*If not found: false*  
dict<sub>1</sub> dict<sub>2</sub> **copy** dict<sub>2</sub>  
dict proc **forall** -  
- **errordict** dict  
- **systemdict** dict  
- **userdict** dict  
- **currentdict** dict  
- **countdictstack** int  
array **dictstack** subarray

## String operators

int **string** string  
string **length** int  
string index **get** int  
string index int **put** -  
string index count **getinterval** substring  
string<sub>1</sub> index string<sub>2</sub> **putinterval** -  
string<sub>1</sub> string<sub>2</sub> **copy** substring<sub>2</sub>  
string proc **forall** -  
string seek **anchorsearch** *If found: post match true*  
*If not found: string false*  
string seek **search** *If found: post match pre true*  
*If not found: string false*  
string **token** *If found: post any true*  
*If not found: false*

## Relational, boolean, and bitwise operators

any<sub>1</sub> any<sub>2</sub> **eq** bool  
any<sub>1</sub> any<sub>2</sub> **ne** bool  
num<sub>1</sub>|string<sub>1</sub> num<sub>2</sub>|string<sub>2</sub> **ge** bool  
num<sub>1</sub>|string<sub>1</sub> num<sub>2</sub>|string<sub>2</sub> **gt** bool  
num<sub>1</sub>|string<sub>1</sub> num<sub>2</sub>|string<sub>2</sub> **le** bool  
num<sub>1</sub>|string<sub>1</sub> num<sub>2</sub>|string<sub>2</sub> **lt** bool  
bool<sub>1</sub>|int<sub>1</sub> bool<sub>2</sub>|int<sub>2</sub> **and** bool<sub>3</sub>|int<sub>3</sub>  
bool<sub>1</sub>|int<sub>1</sub> **not** bool<sub>2</sub>|int<sub>2</sub>  
bool<sub>1</sub>|int<sub>1</sub> bool<sub>2</sub>|int<sub>2</sub> **or** bool<sub>3</sub>|int<sub>3</sub>  
bool<sub>1</sub>|int<sub>1</sub> bool<sub>2</sub>|int<sub>2</sub> **xor** bool<sub>3</sub>|int<sub>3</sub>  
- **true** true  
- **false** false  
int<sub>1</sub> shift **bitshift** int<sub>2</sub>

## Control operators

any **exec** -  
bool proc **if** -  
bool proc<sub>1</sub> proc<sub>2</sub> **ifelse** -  
init incr limit proc **for** -  
count proc **repeat** -  
proc **loop** -  
- **exit** -  
- **stop** -  
any **stopped** bool  
- **countexecstack** int  
array **execstack** subarray  
- **quit** -  
- **start** -

## Type, attribute, and conversion operators

any **type** name  
any **cvlit** any  
any **cvx** any  
any **xcheck** bool  
array|file|string **executeonly** array|file|string  
array|dict|file|string **noaccess** array|dict|file|string  
array|dict|file|string **readonly** array|dict|file|string  
array|dict|file|string **rcheck** bool  
array|dict|file|string **wcheck** bool  
num **cvi** int  
string **cvn** name  
num|string **cvr** real  
any string **cvs** substring  
num radix string **cvrs** substring

## File operators

string<sub>1</sub> string<sub>2</sub> **file** file  
file **closefile** -  
file **read** *If end-of-file: byte true*  
*If not end-of-file: false*  
file int **write** -  
file string **readhexstring** substring bool  
file string **writexstring** -  
file string **readstring** substring bool  
file string **writestring** -

```

file string readline substring bool
file token If found: any true
           If not found: false
file bytesavailable int
- flush -
file flushfile -
file resetfile -
file status bool
string run -
- currentfile file
string print -
any = -
# any1 .. anyn stack # any1 .. anyn
any == -
# any1 anyn pstack # any1 anyn
- prompt -
bool echo -

```

## Virtual memory operators

```

- save save
save restore -
- vmstatus level used maximum

```

## Miscellaneous operators

```

proc bind proc
- null null
- usertime int
- version string

```

## Graphics state operators

```

- gsave -
- grestore -
- grestoreall -
- initgraphics -
num setlinewidth -
- currentlinewidth num
int setlinecap -
- currentlinecap int
int setlinejoin -
- currentlinejoin int
num setmiterlimit -
- curentmiterlimit num
array offset setdash -
- currentdash array offset
num setflat -
- currentflat num
num setgray -
- currentgray num
hue satur bright sethsbcolor -
- currenthsbcolor hue satur bright
red green blue setrgbcolor -
- currentrgbcolor red green blue
frequency rotation proc setscreen -
- currentscreen frequency rotation proc
proc settransfer -
- currenttransfer proc

```

## Coordinate system and matrix operators

```

- matrix matrix
- initmatrix -
matrix identmatrix matrix
matrix defaultmatrix matrix
matrix currentmatrix matrix
matrix setmatrix -
tx ty translate -
tx ty matrix translate matrix
sx sy scale -
sx sy matrix scale matrix
angle rotate -
angle matrix rotate matrix
matrix concat -
matrix1 matrix2 matrix3 concatmatrix matrix3
x y transform x' y'
x y matrix transform x' y'

```

```

xd yd dtransform xd' yd'
xd yd matrix dtransform xd' yd'
x' y' itransform x y
x' y' matrix itransform x y
xd' yd' idtransform xd yd
xd' yd' matrix idtransform xd yd
matrix1 matrix2 invertmatrix matrix2

```

## Path construction operators

```

- newpath -
- currentpoint x y
x y moveto -
dx dy rmoveto -
x y lineto -
dx dy rlineto -
x y r ang1 ang2 arc -
x y r ang1 ang2 arcn -
x1 y1 x2 y2 r arcto xt1 yt1 xt2 yt2
x1 y1 x2 y2 x3 y3 curveto -
dx1 dy1 dx2 dy2 dx3 dy3 rcurveto -
- closepath -
- flattenpath -
- reversepath -
- strokepath -
string bool charpath -
- clippath -
- pathbbox llx lly urx ury
move line curve close pathforall -
- initclip -
- clip -
- eoclip -

```

## Painting operators

```

- erasepage -
- fill -
- eofill -
- stroke -
width height bits/sample matrix proc image -
width height invert matrix proc imagemask -

```

## Device setup and output operators

```

- showpage -
- copypage -
matrix width height proc banddevice -
matrix width height proc framedevice -
- nulldevice -
proc renderbands -

```

## Character and font operators

```

key font definefont font
key findfont font
font num scalefont font'
font matrix makefont font'
font setfont -
- currentfont font
string show -
ax ay string ashow -
cx cy char ax ay string widthshow -
cx cy char ax ay string awidthshow -
proc string kshow -
string stringwidth wx wy
- FontDirectory dict
- StandardEncoding array

```

## Font cache operators

```

- cachestatus bsz bmx msz mmx csz cmx maxbits
wx wy llx lly urx ury setcachedevice -
wx wy setcharwidth -
num setcachelimit -

```

PostScript