

## 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 **writhexstring** -  
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 **=** -  
 # any<sub>1</sub> .. any<sub>n</sub> **stack** # any<sub>1</sub> .. any<sub>n</sub>  
 any **==** -  
 # any<sub>1</sub> any<sub>n</sub> **pstack** # any<sub>1</sub> any<sub>n</sub>  
 - **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** -  
 - **currentmiterlimit** 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** -  
 t<sub>x</sub> t<sub>y</sub> **translate** -  
 t<sub>x</sub> t<sub>y</sub> matrix **translate** matrix  
 s<sub>x</sub> s<sub>y</sub> **scale** -  
 s<sub>x</sub> s<sub>y</sub> matrix **scale** matrix  
 angle **rotate** -  
 angle matrix **rotate** matrix  
 matrix **concat** -  
 matrix<sub>1</sub> matrix<sub>2</sub> matrix<sub>3</sub> **concatmatrix** matrix<sub>3</sub>  
 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  
 matrix<sub>1</sub> matrix<sub>2</sub> **invertmatrix** matrix<sub>2</sub>

## Path construction operators

- **newpath** -  
 - **currentpoint** x y  
 x y **moveto** -  
 d<sub>x</sub> d<sub>y</sub> **rmoveto** -  
 x y **lineto** -  
 d<sub>x</sub> d<sub>y</sub> **rlineto** -  
 x y r ang<sub>1</sub> ang<sub>2</sub> **arc** -  
 x y r ang<sub>1</sub> ang<sub>2</sub> **arcn** -  
 x<sub>1</sub> y<sub>1</sub> x<sub>2</sub> y<sub>2</sub> r **arcto** xt<sub>1</sub> yt<sub>1</sub> xt<sub>2</sub> yt<sub>2</sub>  
 x<sub>1</sub> y<sub>1</sub> x<sub>2</sub> y<sub>2</sub> x<sub>3</sub> y<sub>3</sub> **curveto** -  
 dx<sub>1</sub> dy<sub>1</sub> dx<sub>2</sub> dy<sub>2</sub> dx<sub>3</sub> dy<sub>3</sub> **rcurveto** -  
 - **closepath** -  
 - **flattenpath** -  
 - **reversepath** -  
 - **strokepath** -  
 string bool **charpath** -  
 - **clippath** -  
 - **pathbbox** ll<sub>x</sub> ll<sub>y</sub> ur<sub>x</sub> ur<sub>y</sub>  
 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** -  
 a<sub>x</sub> a<sub>y</sub> string **ashow** -  
 c<sub>x</sub> c<sub>y</sub> char a<sub>x</sub> a<sub>y</sub> string **widthshow** -  
 c<sub>x</sub> c<sub>y</sub> char a<sub>x</sub> a<sub>y</sub> string **awidthshow** -  
 proc string **kshow** -  
 string **stringwidth** w<sub>x</sub> w<sub>y</sub>  
 - **FontDirectory** dict  
 - **StandardEncoding** array

## Font cache operators

- **cachestatus** bsz bmx msz mmx csz cmx maxbits  
 w<sub>x</sub> w<sub>y</sub> ll<sub>x</sub> ll<sub>y</sub> ur<sub>x</sub> ur<sub>y</sub> **setcachedevice** -  
 w<sub>x</sub> w<sub>y</sub> **setcharwidth** -  
 num **setcachelimit** -

PostScript