

83-ROM.TXT A Programmer's Guide to TI-83 ROM Calls Version 0.2.2
 by Henk Poley

 Known ROM versions:
 1.0200, 1.0300, 1.0400, 1.0600, 1.0700, 1.0800, 1.10

Much heard about the idea of making a Ti-83 ROMcall reference. But no one has made it to post one. So I thought:"Let's go for it." And here you see the result. It's not quite finished, not even all 'documented' ROMcalls are documented in this document... :)

I will add (and search for descriptions of) all documented ROMcalls myself, but if you know an 'undocumented' one, please mail it to me. Or you know how that strange 'not fully documented' one works, feel free...

(preferably in the format prescribed below)

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```

-----
ver 0.1 - 5-Oct-2000 - finally made entries to all ROMcalls in Ti83asm.inc
                        next thing to do: Document them all!
ver 0.1.5 - 10-Oct-2000 - about halfway, with adding documentation from
                        www.ti.com/calc and AsmGuru v4
ver 0.2 - 11-Oct-2000 - Finally added ALL docs, except some of those OPxTOOPy
                        and OPxEXOPy. I think I have to make some sort
                        of table for these.
                        NOTE: didn't do that because they are not after
                        each other in the ROM...
ver 0.2.1 - 12-Oct-2000 - Added some of the dozen OPxTOOPy and OPxEXOPy calls.
                        Began with adding jumptable calls. From $4000 there
                        is a jumptable, which jumps to the actual routine.
                        If it seems that all calls are pointing to the same
                        value in all ROM versions, you will be able to squeeze
                        some more speed out of your program. (17 clock less)
                        And I've heard that some calls are even jumping to
                        another call!
                        So: jump, jump, [jump,..] routine.
ver 0.2.2 - 18-Oct-2000 - Began with adding entrys from Squish.inc
                        Whowww 'thousands' of new ROMcalls!!! yay :(
                        I'm beginning to ask why I began with this...
                        Well I'm off for holidays for a week, so some
                        time to 'recover' (Aargh, no PC/TI for 1 week :)
                        I've decided to leave all the CPYxx's for later...

```

```

+-Name of function described -----+-----+-----+-----+-----+-----+

```

Address called	1.02	1.03	1.04	1.06	1.07	1.08	1.10
input:							
output:							
destroid:							
description:							

The Name field holds the name of the function, and the next fields hold the address to call for the different ROM versions. Sometimes some of the fields are empty, this means the address of the function has not been found for that ROM version. If you find it please mail me the information.

For most of the functions there will be an explanation of the function right below the header. The explanation will normally tell you how to call this function, what it does, and which registers it uses.

The Ti-83 ROM is located from \$0000 to \$7FFF, and consist of 16x16Kb ROM-Pages. Which are swapped via port 2.

Can somebody tell me MORE about this ??? Or even make an "Ti-83 ports reference"

I know that there is a new ROM version 1.1001, but I think it has only a new number because Ti made a new case to it. I'll have to check that. (binary compare of ROM dumps)

Questions, questions...

can somebody tell me which value RPUSHREAL01 has (0,8,10h,18h,..,38h)
RST RPUSHREAL01 ; SAVE NAME

Has somebody located where IS_NIB lays around. (somewhere in _exec_assembly).
It checks if token/ASCII is a hex-number (0-9,A-F).
hmpf, the routine uses the error-handler... So 'never mind'.

Are port 2 and 4 ("ROM page changing" and "Interrupt control") used the same way as on the Ti-82???

- I've learned from ZMBOOST, that setting port 4 to 0 (xor a / out (4),a) doesn't freeze your calc, as on the Ti-82.
So they are not exactly the same.

What is the equate of STRCAT (from the Ti-documentation)? I think this will be handy in a C-compiler (Asm program also, naturellement)

Give me some docs about the memory handling routines, _INSTERTMEM(A), _DELETETMEM(A), _CREATEPICT..var..prgm.., etc.

Anyways, can somebody tell me how all the new ROMcalls in Squish.inc work? Most of them are really new to me... :(

=====+
|The ROM calls themselves|
=====+

Startup	0000	0000	0000	0000	0000	0000	0000
input: none							
result: This is the place where the processor starts executing instructions, after it has been reseted, this is almost always because of power-failor, e.g. batteries taken out.							

!!!CALLING THIS ROUTINE MEANS RESETING YOUR CALC!!!

```

+- LD_HL_MHL (1) ---+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      |  ???? |  ???? |  ???? |  ???? |  0033 |  ???? |  0033 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: Address in HL

output: A = (HL)

L = (HL) \ which means,

H = (HL+1) / HL = the two bytes at (HL) and (HL+1)

destroid: A is now (HL)

description: Load 2 bytes in HL from (HL) and (HL+1)

Actual code of ROM v1.10 (and the others?):

```
ld a,(hl)
```

```
inc hl
```

```
ld h,(hl)
```

```
ld l,a
```

```
ret
```

NOTE: There is a call to this a routine at 4000 (all ROM-versions). But I think this one is faster, at least no ROMpage changing. Which isn't the case in ROM 1.10

```

+- LD_HL_MHL (2) ---+
+- _ldHLind -----+-----+-----+-----+-----+-----+-----+
|                   |  4000 |  4000 |  4000 |  4000 |  4000 |  4000 |  4000 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  0033 |  ???? |  0033 |
+-----+-----+-----+-----+-----+-----+

```

input: Address in HL

output: A = (HL) \

L = (HL) > which means, HL = the two bytes at (HL)

H = (HL+1) /

destroid: A is now (HL)

see LD_HL_MHL (1) at \$0033 for further instructions.

```

+- _cphlde -----+-----+-----+-----+-----+-----+-----+
|                   |  4004 |  4004 |  4004 |  4004 |  4004 |  4004 |  4004 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  010F |
+-----+-----+-----+-----+-----+-----+

```

input: HL = number (1)

DE = number (2)

output: carry flag is set if ???? HL = DE ?? or ?? HL != DE ????

destroid: ????

description: Non destructive compare of HL & BC: SBC HL,BC

```

+- UNPACK_HL -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      |  4008 |  4008 |  4008 |  4008 |  4008 |  4008 |  4008 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  011B |
+-----+-----+-----+-----+-----+-----+

```

Input: HL = value to unpack from

Result: A = value unpacked from HL

destroid: HL = changed, to allow unpacking of next number (?? HL incremented ??)

Description: Same as on the TI-82

This function "unpacks" one number from HL. It works from right to left, unpacking the one-number first, then the 10-number and so on. It is used to convert HL into characters that can be displayed using the standard functions in decimal form. This function is used by D_HL_DECI. (_disphL on Ti-83)

NOTE: this function destroys the contents of HL.

Example:

```
ld de,StringPlace+4      ;Location to store string
ld b,5                   ;A word fits into 5 characters
ConvLoop:
  call UNPACK_HL          ;Unpack the next number
  add a,'0'               ;Now A is the CHARACTER for this value
  ld (de),a               ;Put that character into the string
  dec de                  ;Point DE to the next byte in the string
  djnz ConvLoop           ;Convert all the 5 characters
```

```
+ - _divHLbyA -----+-----+-----+-----+-----+-----+-----+
|                               | 400C | 400C | 400C | 400C | 400C | 400C | 400C |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:                     | ???? | ???? | ???? | ???? | ???? | ???? | 011D |
+-----+-----+-----+-----+-----+-----+-----+
```

input: HL = dividend, number to be divided

A = divisor, number by which to divide

output: HL = HL / A

A = remainder

destroid: ????

description: HL/A --> divide HL by A

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED                 | ???? | ???? | ???? | ???? | ???? | ???? | 4010 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:                     | ???? | ???? | ???? | ???? | ???? | ???? | 01CA |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - GET_KEY -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED                 | 4014 | 4014 | 4014 | 4014 | 4014 | 4014 | 4014 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:                     | ???? | ???? | ???? | ???? | ???? | ???? | 026D |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none

output: A = key pressed OR 0 if no key pressed

destroid: ????

the return values:

```
G_NONE   = $00
G_DOWN   = $01
G_LEFT   = $02
G_RIGHT  = $03
G_UP     = $04
G_ENTER  = $09
G_PLUS   = $0A
G_MINUS  = $0B
G_TIMES  = $0C
G_DIV    = $0D
G_CARROT = $0E
G_CLEAR  = $0F
G_NEG    = $11
G_3      = $12
G_6      = $13
G_9      = $14
G_PAREN  = $15
G_TAN    = $16
G_VARS   = $17
```

G_PERIOD = \$19
G_2 = \$1A
G_5 = \$1B
G_8 = \$1C
G_PAREN1 = \$1D
G_COS = \$1E
G_PRGM = \$1F
G_STAT = \$20
G_0 = \$21
G_1 = \$22
G_4 = \$23
G_7 = \$24
G_COMMA = \$25
G_SIN = \$26
G_MATRIX = \$27
G_XTO = \$28
G_ON = \$29
G_STO = \$2A
G_LN = \$2B
G_LOG = \$2C
G_SQR = \$2D
G_INVE = \$2E
G_MATH = \$2F
G_ALPHA = \$30
G_GRAPH = \$31
G_TRACE = \$32
G_ZOOM = \$33
G_WINDOW = \$34
G_YEDIT = \$35
G_2ND = \$36
G_SECOND = \$36
G_MODE = \$37
G_DEL = \$38

+ -	????	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
	UNDOCUMENTED			????		????		????		????		????		????		????		4018	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----
	JP to:			????		????		????		????		????		????		????		02A6	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----

input:

output:

destroid:

description:

+ -	????	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
	UNDOCUMENTED			????		????		????		????		????		????		????		401B	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----
	JP to:			????		????		????		????		????		????		????		02B0	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----

input:

output:

destroid:

description:

+ -	????	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
	UNDOCUMENTED			????		????		????		????		????		????		????		401E	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----
	JP to:			????		????		????		????		????		????		????		02C4	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4021 |
+-----+-----+-----+-----+-----+-----+-----+
| JP to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0383 |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4024 |
+-----+-----+-----+-----+-----+-----+-----+
| JP to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  043A |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4027 |
+-----+-----+-----+-----+-----+-----+-----+
| JP to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  043B |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  402A |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:        |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  045A |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  402E |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:        |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0473 |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED    |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4032 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:        |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0497 |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+ - _A2POINTHLIND -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4036 | 4036 | 4036 | 4036 | 4036 | 4036 | 4036 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:             | ???? | ???? | ???? | ???? | ???? | ???? | 057D |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 403A |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:            | ???? | ???? | ???? | ???? | ???? | ???? | 057E |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 403E |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:            | ???? | ???? | ???? | ???? | ???? | ???? | 0585 |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 4042 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:            | ???? | ???? | ???? | ???? | ???? | ???? | 0590 |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 4046 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:            | ???? | ???? | ???? | ???? | ???? | ???? | 0599 |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 404A |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:            | ???? | ???? | ???? | ???? | ???? | ???? | 05AC |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED        | ???? | ???? | ???? | ???? | ???? | ???? | 404E |
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  05BD |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:

+-  ???? ------+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED  |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4052 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  05D2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:

+-  ???? ------+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED  |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4056 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  05E4 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:

+-  ???? ------+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED  |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  405A |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0603 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description: ?? Same as 405A ??

+-  ???? ------+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED  |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  405E |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0603 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description: ?? Same as 405A ??

+-  ???? ------+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED  |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  4062 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  073C |
+-----+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:

+- _lcd_busy ------+-----+-----+-----+-----+-----+-----+-----+
|               |  4066 |  4066 |  4066 |  4066 |  4066 |  4066 |  4066 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  07DE |
```



```
+-----+-----+-----+-----+-----+-----+-----+-----+
input: none
output: returns after ??? T-states
destroid: none
description: The Z80 is much faster than LCD-driver-chip. So you have to built
             in a delay between writes.
```

TIP: `_lcd_busy` waists bytes, so use the next one instaid:

```
EX SP,(HL)
```

```
EX SP,(HL)
```

This is with 38 T-states a long enough delay and is 1 byte smaller than
a "call `_lcd_busy`". And it won't hurt any register.

```
+-- _MIN -----+-----+-----+-----+-----+-----+-----+-----+
|               | 406A | 406A | 406A | 406A | 406A | 406A | 406A |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      | ??? | ??? | ??? | ??? | ??? | ??? | 087B |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2

output: OP1

destroid: ????

description: min(OP1,OP2) --Well thats clear h♦h? NOT--

NOTE: Beware of the error-handler

```
+-- _MAX -----+-----+-----+-----+-----+-----+-----+-----+
|               | 406E | 406E | 406E | 406E | 406E | 406E | 406E |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      | ??? | ??? | ??? | ??? | ??? | ??? | 0884 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP1

output: OP1

destroid: ????

description: max(OP1,OP2)

NOTE: Beware of the error-handler

```
+-- ??? -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED | ??? | ??? | ??? | ??? | ??? | ??? | 4072 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      | ??? | ??? | ??? | ??? | ??? | ??? | 0892 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+-- _INTGR -----+-----+-----+-----+-----+-----+-----+-----+
|               | 4076 | 4076 | 4076 | 4076 | 4076 | 4076 | 4076 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      | ??? | ??? | ??? | ??? | ??? | ??? | 089A |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1

destroid: ????

description: intgr(OP1)

NOTE: Beware of the error-handler

```
+-- _TRUNC -----+-----+-----+-----+-----+-----+-----+-----+
|               | 407A | 407A | 407A | 407A | 407A | 407A | 407A |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:      | ??? | ??? | ??? | ??? | ??? | ??? | 08B0 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1
destroid: ????
description: ipart(OP1) = interger part of OP1
NOTE: Beware of the error-handler

+- _INVSUB	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			407E		407E		407E		407E		407E		407E	
Call to:			????		????		????		????		????		????	
08B4														

input: OP1,OP2
output: OP1
destroid: ????
description: OP2 - OP1
NOTE: Beware of the error-handler

+- _TIMES2	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			4082		4082		4082		4082		4082		4082	
Call to:			????		????		????		????		????		????	
08B9														

input: OP1
output: OP1
destroid: ????
description: OP1 times 2 (OP1 * 2 -or- OP1 + OP1)
NOTE: Beware of the error-handler

+- _PLUS1	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			4086		4086		4086		4086		4086		4086	
Call to:			????		????		????		????		????		????	
08BC														

input: OP1
output: OP1
destroid: ????
description: OP1 + 1
NOTE: Beware of the error-handler

+- _MINUS1	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			408A		408A		408A		408A		408A		408A	
Call to:			????		????		????		????		????		????	
08CB														

input: OP1
output: OP1
destroid: ????
description: OP1 - 1
NOTE: Beware of the error-handler

+- _FPSUB	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			408E		408E		408E		408E		408E		408E	
Call to:			????		????		????		????		????		????	
08CE														

input: OP1,OP2
output: OP1
destroid: ????
description: OP1 - OP2
NOTE: Beware of the error-handler

+- _FPADD	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			4092		4092		4092		4092		4092		4092	

```

+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  08D5 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1,OP2
output: OP1
destroid: ????
description: OP1 + OP2
NOTE: Beware of the error-handler

```

```

+- _DTOR -----+-----+-----+-----+-----+-----+-----+
|               |  4096 |  4096 |  4096 |  4096 |  4096 |  4096 |  4096 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  09A2 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = degree float. number
output: OP1 = rad(OP1)
destroid: ????
description: Make OP1 to radians (OP1 -> rads)
NOTE: Beware of the error-handler

```

```

+- _RTOD -----+-----+-----+-----+-----+-----+-----+
|               |  409A |  409A |  409A |  409A |  409A |  409A |  409A |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  09AB |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 =  radian float. number
output: OP1 = dec(OP1)
destroid: ????
description: Make OP1 to degrees (OP1 -> degrees)
NOTE: Beware of the error-handler

```

```

+- _CUBE -----+-----+-----+-----+-----+-----+-----+
|               |  409E |  409E |  409E |  409E |  409E |  409E |  409E |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  09B4 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number to be "cube'd"
output: OP1 = OP1^3
destroid: ????
description: OP1 is OP1^3
NOTE: Beware of the error-handler

```

```

+- _TIMESPT5 -----+-----+-----+-----+-----+-----+-----+
|               |  40A2 |  40A2 |  40A2 |  40A2 |  40A2 |  40A2 |  40A2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  09B9 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ????
description: OP1 * 1/2  -or-  OP * .5
NOTE: Beware of the error-handler

```

```

+- _FPSQUARE -----+-----+-----+-----+-----+-----+-----+
|               |  40A6 |  40A6 |  40A6 |  40A6 |  40A6 |  40A6 |  40A6 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  09C1 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ????
description: OP1 = SQRT(OP1)

```

NOTE: Beware of the error-handler

```
+-- _FPMULT -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 40AA | 40AA | 40AA | 40AA | 40AA | 40AA | 40AA |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 09C2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2

output: OP1

destroid: ????

description: OP1 * OP2

NOTE: Beware of the error-handler

```
+-- ???? -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      | ??? | ??? | ??? | ??? | ??? | ??? | 40AE |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0AB9 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+-- _INVOP1SC -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 40B2 | 40B2 | 40B2 | 40B2 | 40B2 | 40B2 | 40B2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0AFB |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1

destroid: ????

description: OP1 = -OP1 ?? And returns the carry ??

NOTE: Beware of the error-handler

```
+-- _INVOP1S -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 40B6 | 40B6 | 40B6 | 40B6 | 40B6 | 40B6 | 40B6 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0AFE |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1

destroid: ????

description: OP1 = -OP1 (NOT: negate OP1 !!!)

NOTE: Beware of the error-handler

```
+-- _INVOP2S -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 40BA | 40BA | 40BA | 40BA | 40BA | 40BA | 40BA |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0B0E |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP2

output: OP2

destroid: ????

description: OP2 = -OP2

NOTE: Beware of the error-handler

```
+-- _FRAC -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 40BE | 40BE | 40BE | 40BE | 40BE | 40BE | 40BE |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0B24 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1
 destroid: ????
 description: fpart(OP1), OP1 = floating part (mantissee) of OP1
 NOTE: Beware of the error-handler

```

+- _FPRECIP -----+-----+-----+-----+-----+-----+-----+
|                   | 40C2 | 40C2 | 40C2 | 40C2 | 40C2 | 40C2 | 40C2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP1
 output: OP1 = 1 / OP1
 destroid: ????
 description: reciproke of OP1 => 1/OP1 => OP1^-1
 NOTE: Beware of the error-handler

```

+- _FPDIV -----+-----+-----+-----+-----+-----+-----+
|                   | 40C6 | 40C6 | 40C6 | 40C6 | 40C6 | 40C6 | 40C6 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP1,OP2
 output: OP1 = OP1 / OP2
 destroid: ????
 description: divide OP1 by OP2
 NOTE: Beware of the error-handler

```

+- _SQROOT -----+-----+-----+-----+-----+-----+-----+
|                   | 40CA | 40CA | 40CA | 40CA | 40CA | 40CA | 40CA |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP1
 output: OP1
 destroid: ????
 description: sqrt(OP1) => Square root of OP1
 NOTE: Beware of the error-handler

```

+- _RNDGUARD -----+-----+-----+-----+-----+-----+-----+
|                   | 40CE | 40CE | 40CE | 40CE | 40CE | 40CE | 40CE |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP1
 output: OP1
 destroid: ????
 description: round(OP1) to ten digits
 NOTE: Beware of the error-handler

```

+- ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |     |     |     |     |     |     |     |
+-----+-----+-----+-----+-----+-----+-----+

```

input:
 output:
 destroid:
 description:

```

+- _INT -----+-----+-----+-----+-----+-----+-----+
|                   | 40D6 | 40D6 | 40D6 | 40D6 | 40D6 | 40D6 | 40D6 |
+-----+-----+-----+-----+-----+-----+-----+

```

```
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0D53 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ????
description: int(OP1)
NOTE: Beware of the error-handler
```

```
+ - _ROUND -----+-----+-----+-----+-----+-----+-----+
|                  |  40DA |  40DA |  40DA |  40DA |  40DA |  40DA |  40DA |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0D55 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = number
      D = number of decimals to keep
output: OP1
destroid: ????
description: Round(OP1) to D decimal places
NOTE: Beware of the error-handler
```

```
+ - _LNx -----+-----+-----+-----+-----+-----+-----+
|                  |  40DE |  40DE |  40DE |  40DE |  40DE |  40DE |  40DE |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0DC9 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1 = ln(OP1)
destroid: ????
description: ln(OP1)
NOTE: Beware of the error-handler
```

```
+ - _LOGx -----+-----+-----+-----+-----+-----+-----+
|                  |  40E2 |  40E2 |  40E2 |  40E2 |  40E2 |  40E2 |  40E2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0DE2 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ????
description: log(OP1) => logarithm of OP1
NOTE: Beware of the error-handler
```

```
+ - ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  40E6 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0F1B |
+-----+-----+-----+-----+-----+-----+-----+
input:
output:
destroid:
description:
```

```
+ - _ETOX -----+-----+-----+-----+-----+-----+-----+
|                  |  40EA |  40EA |  40EA |  40EA |  40EA |  40EA |  40EA |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          |  ???? |  ???? |  ???? |  ???? |  ???? |  ???? |  0FBB |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
utput: OP1 = e^OP1
destroid: ????
description: e^OP1 => natural logarithm of OP1
NOTE: Beware of the error-handler
```

```
+-- _TENX -----+-----+-----+-----+-----+-----+-----+
|                   | 40EE | 40EE | 40EE | 40EE | 40EE | 40EE | 40EE |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 0FC5 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: OP1 = 10^{OP1}

destroid: ????

description: 10^{OP1}

NOTE: Beware of the error-handler

```
+-- ???? -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      | ??? | ??? | ??? | ??? | ??? | ??? | 40F2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 10DB |
+-----+-----+-----+-----+-----+-----+-----+
```

input:

output:

destroid:

description:

```
+-- _SIN -----+-----+-----+-----+-----+-----+-----+
|                   | 40F6 | 40F6 | 40F6 | 40F6 | 40F6 | 40F6 | 40F6 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 10DF |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1 = Number

output: OP1 = $\sin(OP1)$

destroid: ????

description: Sinus of OP1

NOTE: Beware of the error-handler

```
+-- _COS -----+-----+-----+-----+-----+-----+-----+
|                   | 40FA | 40FA | 40FA | 40FA | 40FA | 40FA | 40FA |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 10E3 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1 = Number

output: OP1 = $\cos(OP1)$

destroid: ????

description: Cosinus of OP1

NOTE: Beware of the error-handler

```
+-- _TAN -----+-----+-----+-----+-----+-----+-----+
|                   | 40FE | 40FE | 40FE | 40FE | 40FE | 40FE | 40FE |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 10E7 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1 = Number

output: OP1 = $\tan(OP1)$

destroid: ????

description: Tangens of OP1

NOTE: Beware of the error-handler

```
+-- _TANH -----+-----+-----+-----+-----+-----+-----+
|                   | 4106 | 4106 | 4106 | 4106 | 4106 | 4106 | 4106 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | 10E7 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1 = Number

output: OP1 = $\tanh(OP1)$

destroid: ????

description: Tangens hyperbolicus of OP1

NOTE: Beware of the error-handler

```
+ - _COSH -----+-----+-----+-----+-----+-----+-----+
|                   | 410A | 410A | 410A | 410A | 410A | 410A | 410A |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
output: OP1 = cosh(OP1)
destroid: ???
description: Cosinus hyperbolicus of OP1
NOTE: Beware of the error-handler
```

```
+ - _SINH -----+-----+-----+-----+-----+-----+-----+
|                   | 410E | 410E | 410E | 410E | 410E | 410E | 410E |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
output: OP1 = sinh(OP1)
destroid: ???
description: Sinus hyperbolicus of OP1
NOTE: Beware of the error-handler
```

```
+ - _ACOS -----+-----+-----+-----+-----+-----+-----+
|                   | 4122 | 4122 | 4122 | 4122 | 4122 | 4122 | 4122 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
output: OP1 = inv cos(OP1)
destroid: ???
description: ArcCosinus of OP1
NOTE: Beware of the error-handler
```

```
+ - _ATAN -----+-----+-----+-----+-----+-----+-----+
|                   | 4126 | 4126 | 4126 | 4126 | 4126 | 4126 | 4126 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
output: OP1 = inv tan(OP1)
destroid: ???
description: ArcTangens of OP1
NOTE: Beware of the error-handler
```

```
+ - _ASIN -----+-----+-----+-----+-----+-----+-----+
|                   | 412A | 412A | 412A | 412A | 412A | 412A | 412A |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = Number
output: OP1 = inv sin(OP1)
destroid: ???
description: ArcSinus of OP1
NOTE: Beware of the error-handler
```

```
+ - _ATANH -----+-----+-----+-----+-----+-----+-----+
|                   | 4132 | 4132 | 4132 | 4132 | 4132 | 4132 | 4132 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ???
description: ArcTanh(OP1) Whateveritmaybe
NOTE: Beware of the error-handler
```

```
+ - _ASINH -----+-----+-----+-----+-----+-----+-----+
|                   | 4136 | 4136 | 4136 | 4136 | 4136 | 4136 | 4136 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1
destroid: ???
```


description: ArcSinh(OP1)
NOTE: Beware of the error-handler

```
+- _ACOSH -----+-----+-----+-----+-----+-----+-----+
|               | 413A | 413A | 413A | 413A | 413A | 413A | 413A |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1
output: OP1
destroid: ????
description: ArcCosh(OP1)
NOTE: Beware of the error-handler

```
+- _PTOR -----+-----+-----+-----+-----+-----+-----+
|               | 413E | 413E | 413E | 413E | 413E | 413E | 413E |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
output: ?? OP1 ??
destroid: ????
description: (OP1,OP2) pol>rect
NOTE: Beware of the error-handler

```
+- _RTOP -----+-----+-----+-----+-----+-----+-----+
|               | 4142 | 4142 | 4142 | 4142 | 4142 | 4142 | 4142 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
output: ?? OP1 ??
destroid: ????
description: (OP1,OP2) rect,pol
NOTE: Beware of the error-handler

```
+- _CKOP1REAL -----+-----+-----+-----+-----+-----+-----+
|               | 414E | 414E | 414E | 414E | 414E | 414E | 414E |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1
output: A = object type of OP1
Z-flag = set, if type is 'real'
destroid: ????
description: extract object type from OP1 into A

```
+- _ANGLE -----+-----+-----+-----+-----+-----+-----+
|               | 4152 | 4152 | 4152 | 4152 | 4152 | 4152 | 4152 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
output: ????
destroid: ????
description: ????

```
+- _OP3TOOP4 -----+-----+-----+-----+-----+-----+-----+
|               | 416A | 416A | 416A | 416A | 416A | 416A | 416A |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP3
output: OP4
destroid: ????
description: OP4 = OP3
note: error-handler?

```
+- _CPOP1OP2 -----+-----+-----+-----+-----+-----+-----+
|               | 4166 | 4166 | 4166 | 4166 | 4166 | 4166 | 4166 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
output: carry = set : OP1 < OP2
= not set : OP1 >= OP2

zero-flag = set : OP1 = OP2
destroid: ????
description: Non destructive compare of OP1 and OP2 => OP1 == OP2
NOTE: Beware of the error-handler

```
+--_OP1TOOP4-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 416E | 416E | 416E | 416E | 416E | 416E | 416E |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP4
destroid: ????
description: OP4 = OP1
```

```
+--_OP2TOOP4-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4172 | 4172 | 4172 | 4172 | 4172 | 4172 | 4172 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP2
output: OP4
destroid: ????
description: OP4 = OP2
```

```
+--_OP4TOOP2-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4176 | 4176 | 4176 | 4176 | 4176 | 4176 | 4176 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP4
output: OP2
destroid: ????
description: OP4 = OP2
```

```
+--_OP3TOOP2-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 417A | 417A | 417A | 417A | 417A | 417A | 417A |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP3
output: OP3
destroid: ????
description: OP2 = OP3
```

```
+--_OP1TOOP3-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 417E | 417E | 417E | 417E | 417E | 417E | 417E |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP3
destroid: ????
description: OP3 = OP1
```

```
+--_OP5TOOP2-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4182 | 4182 | 4182 | 4182 | 4182 | 4182 | 4182 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP2
output: OP5
destroid: ????
description: OP2 = OP5
```

```
+--_OP5TOOP6-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4186 | 4186 | 4186 | 4186 | 4186 | 4186 | 4186 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP5
output: OP6
destroid: ????
description: OP6 = OP5
```

```
+--_OP5TOOP4-----+-----+-----+-----+-----+-----+-----+-----+
```

```
|          | 418A | 418A | 418A | 418A | 418A | 418A | 418A |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP5
output: OP4
destroid: ????
description: OP4 = OP5

+- _OP1TOOP2 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 418E | 418E | 418E | 418E | 418E | 418E | 418E |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP2
destroid: ????
description: OP2 = OP1

+- _OP6TOOP2 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4192 | 4192 | 4192 | 4192 | 4192 | 4192 | 4192 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP6
output: OP2
destroid: ????
description: OP2 = OP6

+- _OP6TOOP1 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4196 | 4196 | 4196 | 4196 | 4196 | 4196 | 4196 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP6
output: OP1
destroid: ????
description: OP1 = OP6

+- _OP4TOOP1 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 419A | 419A | 419A | 419A | 419A | 419A | 419A |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP4
output: OP1
destroid: ????
description: OP1 = OP4

+- _OP5TOOP1 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 419E | 419E | 419E | 419E | 419E | 419E | 419E |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP5
output: OP1
destroid: ????
description: OP1 = OP5

+- _OP3TOOP1 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 41A2 | 41A2 | 41A2 | 41A2 | 41A2 | 41A2 | 41A2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP3
output: OP1
destroid: ????
description: OP1 = OP3

+- _OP6TOOP5 -----+-----+-----+-----+-----+-----+-----+-----+
|          | 41A6 | 41A6 | 41A6 | 41A6 | 41A6 | 41A6 | 41A6 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: OP6
output: OP5
destroid: ????
description: OP5 = OP6
```

```
+ - _OP4TOOP5 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41AA | 41AA | 41AA | 41AA | 41AA | 41AA | 41AA | 41AA |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP4
output: OP5
destroid: ????
description: OP5 = OP4

+ - _OP3TOOP5 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41AE | 41AE | 41AE | 41AE | 41AE | 41AE | 41AE | 41AE |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP3
output: OP5
destroid: ????
description: OP5 = OP3

+ - _OP2TOOP5 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41B2 | 41B2 | 41B2 | 41B2 | 41B2 | 41B2 | 41B2 | 41B2 |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP2
output: OP5
destroid: ????
description: OP5 = OP2

+ - _OP2TOOP6 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41B6 | 41B6 | 41B6 | 41B6 | 41B6 | 41B6 | 41B6 | 41B6 |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP2
output: OP6
destroid: ????
description: OP6 = OP2

+ - _OP1TOOP6 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41BA | 41BA | 41BA | 41BA | 41BA | 41BA | 41BA | 41BA |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP1
output: OP6 = OP1
destroid: ????
description: copy OP1 to OP6

+ - _OP1TOOP5 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41BE | 41BE | 41BE | 41BE | 41BE | 41BE | 41BE | 41BE |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP1
output: OP5 = OP1
destroid: ????
description: copy OP1 to OP5

+ - _OP2TOOP1 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41C2 | 41C2 | 41C2 | 41C2 | 41C2 | 41C2 | 41C2 | 41C2 |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP2
output: OP1
destroid: ????
description: OP1 = OP2

+ - _OP2TOOP3 - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
|           | 41F6 | 41F6 | 41F6 | 41F6 | 41F6 | 41F6 | 41F6 | 41F6 |
+ - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - + - - - - +
input: OP2
```

output: OP3
destroid: ????
description: OP3 = OP2

```
+--_OP4TOOP3-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 41FA | 41FA | 41FA | 41FA | 41FA | 41FA | 41FA |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP4
output: OP3
destroid: ????
description: OP3 = OP4

```
+--_OP5TOOP3-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 41FE | 41FE | 41FE | 41FE | 41FE | 41FE | 41FE |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP5
output: OP3
destroid: ????
description: OP3 = OP5

```
+--_OP4TOOP6-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4202 | 4202 | 4202 | 4202 | 4202 | 4202 | 4202 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP4
output: OP6
destroid: ????
description: OP6 = OP4

```
+--_MOVFR0P1-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4212 | 4212 | 4212 | 4212 | 4212 | 4212 | 4212 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1
output: (DE),(DE+1),(DE+x),(DE+8) = (??first??) 9 bytes of OP1
destroid: ????
description: Move 9 bytes form OP1 to (DE)

```
+--_OP4SET1-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4216 | 4216 | 4216 | 4216 | 4216 | 4216 | 4216 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none
output: OP4
destroid: ????
description: OP4 = 1

```
+--_OP3SET1-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 421A | 421A | 421A | 421A | 421A | 421A | 421A |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none
output: OP3
destroid: ????
description: OP3 = 1

```
+--_OP2SET8-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 421E | 421E | 421E | 421E | 421E | 421E | 421E |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none
output: OP2
destroid: ????
description: OP2 = 8

```
+--_OP2SET5-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4222 | 4222 | 4222 | 4222 | 4222 | 4222 | 4222 |
+-----+-----+-----+-----+-----+-----+-----+
```

```
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 5
```

```
+-- _OP2SETA -----+-----+-----+-----+-----+-----+
|                   | 4226 | 4226 | 4226 | 4226 | 4226 | 4226 | 4226 |
+-----+-----+-----+-----+-----+-----+
input: ????
output: OP2
destroid: ????
description: OP2 = ??
```

```
+-- _OP2SET4 -----+-----+-----+-----+-----+-----+
|                   | 422A | 422A | 422A | 422A | 422A | 422A | 422A |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 4
```

```
+-- _OP2SET3 -----+-----+-----+-----+-----+-----+
|                   | 422E | 422E | 422E | 422E | 422E | 422E | 422E |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 3
```

```
+-- _OP1SET1 -----+-----+-----+-----+-----+-----+
|                   | 4232 | 4232 | 4232 | 4232 | 4232 | 4232 | 4232 |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: ????
description: OP1 = 1
```

```
+-- _OP1SET4 -----+-----+-----+-----+-----+-----+
|                   | 4236 | 4236 | 4236 | 4236 | 4236 | 4236 | 4236 |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: ????
description: OP1 = 4
```

```
+-- _OP1SET3 -----+-----+-----+-----+-----+-----+
|                   | 423A | 423A | 423A | 423A | 423A | 423A | 423A |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: ????
description: OP1 = 3
```

```
+-- _OP3SET2 -----+-----+-----+-----+-----+-----+
|                   | 423E | 423E | 423E | 423E | 423E | 423E | 423E |
+-----+-----+-----+-----+-----+-----+
input: none
output: OP3
destroid: ????
description: OP3 = 2
```

```
+ - _OP1SET2 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4242 | 4242 | 4242 | 4242 | 4242 | 4242 | 4242 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: ????
description: OP1 = 2

+ - _OP2SET2 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4246 | 4246 | 4246 | 4246 | 4246 | 4246 | 4246 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 2

+ - _OP2SET1 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4252 | 4252 | 4252 | 4252 | 4252 | 4252 | 4252 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 1

+ - _OP5SET0 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4276 | 4276 | 4276 | 4276 | 4276 | 4276 | 4276 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP5
destroid: ????
description: OP5 = 0

+ - _OP4SET0 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 427A | 427A | 427A | 427A | 427A | 427A | 427A |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP4
destroid: ????
description: OP4 = 0

+ - _OP3SET0 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 427E | 427E | 427E | 427E | 427E | 427E | 427E |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP3
destroid: ????
description: OP3 = 0

+ - _OP2SET0 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4282 | 4282 | 4282 | 4282 | 4282 | 4282 | 4282 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 0

+ - _OP1SET0 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4286 | 4286 | 4286 | 4286 | 4286 | 4286 | 4286 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: ????
```

description: OP1 = 0

```
+-- _ZER00OP1 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 428E | 428E | 428E | 428E | 428E | 428E | 428E |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: none

output: OP1

destroid: ????

description: Fill OP1 with zeros

```
+-- _ADDPROPLP -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC             | 42D2 | 42D2 | 42D2 | 42D2 | 42D2 | 42D2 | 42D2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _ADD14D -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC             | 42DA | 42DA | 42DA | 42DA | 42DA | 42DA | 42DA |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _OP2EXOP6 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 42E6 | 42E6 | 42E6 | 42E6 | 42E6 | 42E6 | 42E6 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP2,OP6

output: OP2,OP6

destroid: ????

description: OP2 => OP6

OP6 => OP2

```
+-- _OP5EXOP6 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 42EA | 42EA | 42EA | 42EA | 42EA | 42EA | 42EA |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _OP1EXOP5 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 42EE | 42EE | 42EE | 42EE | 42EE | 42EE | 42EE |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _OP1EXOP6 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 42F2 | 42F2 | 42F2 | 42F2 | 42F2 | 42F2 | 42F2 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _OP2EXOP4 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 42F6 | 42F6 | 42F6 | 42F6 | 42F6 | 42F6 | 42F6 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```


input: ????
output: ????
destroid: ????
description: ????

```
+--_OP2EXOP5-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 42FA | 42FA | 42FA | 42FA | 42FA | 42FA | 42FA |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
output: ????
destroid: ????
description: ????

```
+--_OP1EXOP3-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 42FE | 42FE | 42FE | 42FE | 42FE | 42FE | 42FE |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
output: ????
destroid: ????
description: ????

```
+--_OP1EXOP4-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4302 | 4302 | 4302 | 4302 | 4302 | 4302 | 4302 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP4
output: OP1,OP4
destroid: ????
description: OP1 <=> OP4

```
+--_OP1EXOP2-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4306 | 4306 | 4306 | 4306 | 4306 | 4306 | 4306 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
output: OP1,OP2
destroid: ????
description: OP1 <=> OP2

```
+--_CKOP1CO-----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC       | 430E | 430E | 430E | 430E | 430E | 430E | 430E |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
output: ????
destroid: ????
description: ????

```
+--_CKOP1FP0-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4312 | 4312 | 4312 | 4312 | 4312 | 4312 | 4312 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1
output: zero-flag
 0, OP1 != 0
 1, OP1 = 0
destroid: ????
description: check for OP1 = zero

```
+--_CKOP2FP0-----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4316 | 4316 | 4316 | 4316 | 4316 | 4316 | 4316 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP2
output: zero-flag
 0, OP2 != 0
 1, OP2 = 0

destroid: ????

description: check for OP2 = zero

```

+- _CKPOSINT -----+-----+-----+-----+-----+-----+-----+
|                     | 431E | 431E | 431E | 431E | 431E | 431E | 431E |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ?? if OP1 is a positive integer ??

...Didn't find any Ti docs..

```

+- _CKINT -----+-----+-----+-----+-----+-----+-----+
|                     | 4322 | 4322 | 4322 | 4322 | 4322 | 4322 | 4322 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: HL = Pointer to exponent of number to check (ex: ld HL,OP1)

output: Zero-flag

0, not integer

1, integer

destroid: ????

description: Check digit of floating point number

```

+- _CKODD -----+-----+-----+-----+-----+-----+-----+
|                     | 4326 | 4326 | 4326 | 4326 | 4326 | 4326 | 4326 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: HL = Pointer to exponent of number to check (ex: ld HL,OP1)

output: Zero-flag

0, odd

1, even

destroid: ????

description: Check if floating point number is odd/even

```

+- _CKOP1M -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 432A | 432A | 432A | 432A | 432A | 432A | 432A |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CKOP2POS -----+-----+-----+-----+-----+-----+-----+
|                     | 4356 | 4356 | 4356 | 4356 | 4356 | 4356 | 4356 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP2

output: A = sign digit

Zero-flag

0, negative OR zero

1, positive

destroid: ????

description: Check OP2 for positive mantissa sign

```

+- _CKOP1POS -----+-----+-----+-----+-----+-----+-----+
|                     | 435A | 435A | 435A | 435A | 435A | 435A | 435A |
+-----+-----+-----+-----+-----+-----+-----+

```

input: OP1

output: A = sign digit

Zero-flag

0, negative OR zero

1, positive

destroid: ????

description: Check OP1 for positive mantissa sign

```

+- _CLROP2S -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 435E | 435E | 435E | 435E | 435E | 435E | 435E |
+-----+-----+-----+-----+-----+-----+-----+
input: OP2
output: OP2 = positive
destroid: ????
description: Clear the mantissa sign bit in OP2 (bit 7)

+- _CLROP1S -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4362 | 4362 | 4362 | 4362 | 4362 | 4362 | 4362 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1 = positive
destroid: ????
description: Clear the mantissa sign bit in OP1 (bit 7)

+- _HTIMESL -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4382 | 4382 | 4382 | 4382 | 4382 | 4382 | 4382 |
+-----+-----+-----+-----+-----+-----+-----+
input: H<>0 = numner (1)
      L    = number (2)
output: HL = H*L
destroid: ????
description: H * L --> H times L
              Do a fixed point Hex multiply (H*L)
              Cannot overflow :)

+- _CHKERRBREAK ----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC        | 43BA | 43BA | 43BA | 43BA | 43BA | 43BA | 43BA |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _CKOP2REAL -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4412 | 4412 | 4412 | 4412 | 4412 | 4412 | 4412 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP2
output: A = object type from OP2
       Zero-flag
       0, type is not 'real'
       1, type is 'real'
destroid: ????
description: extract object type from OP2 into A

+- _memchk -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      | 441A | 441A | 441A | 441A | 441A | 441A | 441A |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: HL = amount of free user memory
destroid: ????

+- _CMPPRGNAMLEN1 --+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC        | 441E | 441E | 441E | 441E | 441E | 441E | 441E |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ?? checks if OP1 could be a programs name (length-check) ??

+- _CMPPRGNAMLEN ---+-----+-----+-----+-----+-----+-----+-----+

```

SQUISH.INC	4422	4422	4422	4422	4422	4422	4422	
------------	------	------	------	------	------	------	------	--

+-----+-----+-----+-----+-----+-----+-----+-----+
 input: ????
 output: ????
 destroid: ????
 description: ????

+ - _CHKFINDSYM	+-----+-----+-----+-----+-----+-----+-----+-----+
	442A 442A 442A 442A 442A 442A 442A

+-----+-----+-----+-----+-----+-----+-----+-----+
 input: OP1(MSB) = type of variable
 OP1[1..7] = name of var to lookup (zero terminated string)
 output: if(!exists)
 carry = set
 if(exists)
 carry = unset/zero
 A = variable type
 OP1 = variable value (and type)
 HL = pointer to start of symbol entry in VAT
 DE = pointer to the data
 destroid: ????
 description: Finds a non-real system variable in the symbol table

+ - _INSERTMEM	+-----+-----+-----+-----+-----+-----+-----+-----+
	4432 4432 4432 4432 4432 4432 4432

+-----+-----+-----+-----+-----+-----+-----+-----+
 | Call to: | ???? | ???? | ???? | ???? | ???? | ???? | ???? |
 +-----+-----+-----+-----+-----+-----+-----+-----+
 input: ????
 output: ????
 destroid: ????
 description: ????

+ - _INSERTMEMA	+-----+-----+-----+-----+-----+-----+-----+-----+
	4436 4436 4436 4436 4436 4436 4436

+-----+-----+-----+-----+-----+-----+-----+-----+
 | Call to: | ???? | ???? | ???? | ???? | ???? | ???? | ???? |
 +-----+-----+-----+-----+-----+-----+-----+-----+
 input: ????
 output: ????
 destroid: ????
 description: ????

+ - _createpict	+-----+-----+-----+-----+-----+-----+-----+-----+
UNDOCUMENTED	4482 4482 4482 4482 4482 4482 4482

+-----+-----+-----+-----+-----+-----+-----+-----+
 input: OP1 = 07h, 60h, picture number:
 +-----+
 | 0 = Pic1 |
 | 1 = Pic2 |
 | .. |
 | 9 = Pic0 |
 +-----+
 output: an empty picture is created
 DE = pointer to new picture
 destroid: ????
 description: create a new picture
 NOTE: first 2 bytes of picture are size bytes

+ - _createprog	+-----+-----+-----+-----+-----+-----+-----+-----+
UNDOCUMENTED	448A 448A 448A 448A 448A 448A 448A

+-----+-----+-----+-----+-----+-----+-----+-----+

input: OP1 = 05h, name-string (zero terminated, ASCIIIZ)

output: a new program is created

DE = pointer to new program

destroid: ????

description: create a new program

NOTE: first 2 bytes of program are size bytes

```
+-- _ADJPARSER -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 4496 | 4496 | 4496 | 4496 | 4496 | 4496 | 4496 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _DELMEMA -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | ??? |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _DELVAR -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 44AA | 44AA | 44AA | 44AA | 44AA | 44AA | 44AA |
+-----+-----+-----+-----+-----+-----+-----+
```

input: HL = Pointer to symbol entry in the VAT

DE = Pointer to data

output: Symbol is removed form VAT

Data is deleted

destroid: ????

description: delete a variable

```
+-- _DELMEM -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 | 44B2 |
+-----+-----+-----+-----+-----+-----+-----+
| Call to:          | ??? | ??? | ??? | ??? | ??? | ??? | ??? |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: ????

```
+-- _PUSHREAL01 -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4536 | 4536 | 4536 | 4536 | 4536 | 4536 | 4536 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????

output: ????

destroid: ????

description: Pushes OP1 onto FPST (Floating Point Sack)

...I really need some more docs about the FPST...

```
+-- _putmap -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 4701 | 4701 | 4701 | 4701 | 4701 | 4701 | 4701 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: A = character to print

(CURROW)

(CURCOL)

textInverse,(iy+textflags)

0, normal

```

    1, inverted
    AppTextSave,(iy+..)
    0, TextShadow is preserved
    1, TextShadow is also affected
output: character in A is displayed at current cursor position
destr0id: ????
NOTE: The cursor-position is NOT updated

```

```

+- _putc -----+-----+-----+-----+-----+-----+-----+
|               | 4705 | 4705 | 4705 | 4705 | 4705 | 4705 | 4705 |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: A = character to print
    (CURROW)
    (CURCOL)
    textInverse,(iy+textflags)
    0, normal
    1, inverted
    appTextSave,(iy+appFlags)
    0, TextShadow is preserved
    1, TextShadow is also affected
    appAutoScroll,(iy+appFlags)
    0, no automatic scrolling
    1, text is automatically scrolled up if
        end of screen has been reached
output: character in A is displayed at current cursor position
    (CURCOL) = incremented (or zero'd if end of line)
    (CURROW) = incremented if end of line (or zero'd if end of screen)
    textScrolled,(iy+textflags)
    0, no scrolling occurred
    1, the text has scrolled (the routine
        reached the end of the screen)
destr0id: ????

```

```

+- _dispHL -----+-----+-----+-----+-----+-----+-----+
|               | 4709 | 4709 | 4709 | 4709 | 4709 | 4709 | 4709 |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: HL = number to display
    (CURROW)
    textInverse,(iy+textflags)
    0, normal
    1, inverted
    AppTextSave,(iy+..)
    0, TextShadow is preserved
    1, TextShadow is also affected
output: number in HL is displayed at the end of the line
    OP1[0..5] = 5 digit number string
    (CURROW) updated
    (CURCOL) updated
destr0id: OP1
description: convert contents of HL to printable decimal and send it to the
            screen.

```

```

+- _puts -----+-----+-----+-----+-----+-----+-----+
|               | 470D | 470D | 470D | 470D | 470D | 470D | 470D |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: HL = pointer to zero terminated string (ASCIIIZ)
    (CURROW)
    (CURCOL)
    textInverse,(iy+textflags)
    0, normal
    1, inverted
    AppTextSave,(iy+..)

```

```

    0, TextShadow is preserved
    1, TextShadow is also affected
output: string at (HL) is displayed
    Carry
    0, if it ran off the screen
    1, if entire string was displayed
    (CURROW) updated
    (CURCOL) updated
destroid: ???
description: Display a zero terminated string (ASCIIIZ), like:
    "HELLO",0 ; string with zero-terminator

```

```

+- _putps -----+-----+-----+-----+-----+-----+-----+-----+
|               | 4715 | 4715 | 4715 | 4715 | 4715 | 4715 | 4715 |
+-----+-----+-----+-----+-----+-----+-----+
input: HL = pionter to string (the length byte of it)
    (CURROW)
    (CURCOL)
    AppTextSave,(iy+..)
    0, TextShadow is preserved
    1, TextShadow is also affected
output: string is displayed
    (CURROW) updated
    (CURCOL) updated
destroid: ???
description: Display a length byte indexed string, like:
    5,"HELLO" ; 5 characters in string, no zero-terminator needed

```

```

+- _newline -----+-----+-----+-----+-----+-----+-----+-----+
|               | 473D | 473D | 473D | 473D | 473D | 473D | 473D |
+-----+-----+-----+-----+-----+-----+-----+
input: AppTextSave,(iy+..)
    0, TextShadow is preserved
    1, TextShadow is also affected
output: (CURROW) = if(CURROW < 8), incremented
    else the screen is scrolled
    (CURCOL) = 0
destroid: ???
description: Increments cursor row, and sets cursor column to 0.

```

```

+- _moveDown -----+-----+-----+-----+-----+-----+-----+-----+
|               | 4741 | 4741 | 4741 | 4741 | 4741 | 4741 | 4741 |
+-----+-----+-----+-----+-----+-----+-----+
input: (CURROW)
output: Carry
    0, screen scrolled
    1, cursor moved
destroid: ???
description: Move cursor down. Scroll screen up if necessary to keep the
    cursor on the screen.

```

```

+- _scrollUp -----+-----+-----+-----+-----+-----+-----+-----+
|               | 4745 | 4745 | 4745 | 4745 | 4745 | 4745 | 4745 |
+-----+-----+-----+-----+-----+-----+-----+
input: AppTextSave,(iy+..)
    0, TextShadow is preserved
    1, TextShadow is also affected
output: display is scrolled UP 8 pixels
destroid: ???
description: Scroll window up one display line

```

```

+- _moveup -----+-----+-----+-----+-----+-----+-----+-----+

```

```

|          | 474D | 474D | 474D | 474D | 474D | 474D | 474D |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: (CURROW)
    AppTextSave,(iy+..)
        0, TextShadow is preserved
        1, TextShadow is also affected
output: Positive status if cursor moved.
        Negative status if screen scrolled.
        ...Okay, and WHAT ON EARTH is that 'status', Carry maybe...
destroid: ????
description: Move cursor up, scroll screen down if necessary to keep the
            cursor on the screen.

```

```

+- _scrollDown -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4751 | 4751 | 4751 | 4751 | 4751 | 4751 | 4751 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: AppTextSave,(iy+..)
        0, TextShadow is preserved
        1, TextShadow is also affected
output: display is scrolled DOWN 8 pixels
destroid: ????
description: Scroll lines (within current window) down one display line.

```

```

+- _CLRLCDFULL -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4755 | 4755 | 4755 | 4755 | 4755 | 4755 | 4755 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: none
output: LCD is cleared (NOT the buffers)
destroid: ????
NOTE: Ignores Horizontal-split-mode flag

```

```

+- _clrScrnFull -----+-----+-----+-----+-----+-----+-----+-----+
|          | 475D | 475D | 475D | 475D | 475D | 475D | 475D |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: AppTextSave,(iy+..)
        0, TextShadow is preserved
        1, TextShadow is also cleared
output: LCD is cleared, buffer is cleared depending on flag
destroid: ????
NOTE: Ignores Horizontal-split-mode flag

```

```

+- _CLRTXTSHD -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4765 | 4765 | 4765 | 4765 | 4765 | 4765 | 4765 |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: none
output: TextShadow is cleared
destroid: ????
NOTE: Ignores Horizontal-split-mode flag

```

```

+- _eraseEOL -----+-----+-----+-----+-----+-----+-----+-----+
|          | 476D | 476D | 476D | 476D | 476D | 476D | 476D |
+-----+-----+-----+-----+-----+-----+-----+-----+
input: apptextsave,(iy+..)
        0, don't affect TextShadow
        1, affect TextShadow
output: Text is erased
destroid: Erase from current cursor location to end of line.
        No cursor update.

```

```

+- _homeUp -----+-----+-----+-----+-----+-----+-----+-----+
|          | 4775 | 4775 | 4775 | 4775 | 4775 | 4775 | 4775 |
+-----+-----+-----+-----+-----+-----+-----+-----+

```



```

input: none
output: (CURROW) = 0
        (CURCOL) = 0
destr0id: ????
description: cursor(0,0), cursor to top-left corner
            Put the cursor on the top row of the SCREEN

```

```

+- _vputmap -----+-----+-----+-----+-----+-----+-----+
|                   | 477D | 477D | 477D | 477D | 477D | 477D | 477D |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: A = character to print
      (PENROW)
      (PENCOL)
      textInverse,(iy+textflags)
          0, normal
          1, inverse
      textEraseBelow,(iy+..)
          0, normal
          1, erase line below character
      textwrite,(iy+..)
          0, write only to LCD
          1, write to LCD and PLOTSSCREEN

```

```

output: Carry = set, if character couldn't fit on the line
      (PENCOL) updated
      (PENROW) updated

```

```

destr0id: ????
description: character in A is displayed in variable font at current 'pen' position

```

```

+- _vputs -----+-----+-----+-----+-----+-----+-----+
|                   | 4781 | 4781 | 4781 | 4781 | 4781 | 4781 | 4781 |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: HL = pointer to zero terminated string (ASCIIIZ)
      (PENROW)
      (PENCOL)
      textInverse,(iy+textflags)
      textEraseBelow,(iy,..)
          0, normal
          1, erase line below character
      textwrite,(iy+..)
          0, LCD only
          1, LCD and PLOTSSCREEN

```

```

output: String at (HL) is displayed in variable width characters
      (PENROW) updated
      (PENCOL) updated
      (?) Carry-flag is set if it ran off the screen (?)

```

```

destr0id: ????

```

```

+- _putsn -----+-----+-----+-----+-----+-----+-----+
|                   | 4785 | 4785 | 4785 | 4785 | 4785 | 4785 | 4785 |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: ????
output: ???? well, something is displayed in BIG text
destr0id: ????
description: HELP, I DIDN'T FIND ANY DOCS

```

```

+- _runIndicOn -----+-----+-----+-----+-----+-----+-----+
|                   | 4791 | 4791 | 4791 | 4791 | 4791 | 4791 | 4791 |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: none
output: runindicator is (re)displayed
destr0id: ????

```

```

+- _runIndicOff -----+-----+-----+-----+-----+-----+-----+-----+
|           | 4795 | 4795 | 4795 | 4795 | 4795 | 4795 | 4795 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: runindicator isn't displayed anymore
destroid: ????
```

```

+- _SAVESHADOW -----+-----+-----+-----+-----+-----+-----+-----+
|           | 479D | 479D | 479D | 479D | 479D | 479D | 479D |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
```

```

output: ????
```

```

destroid: ????
```

```

description: HELP, I DIDN'T FIND ANY DOCS
```

```

+- _RSTRSHADOW -----+-----+-----+-----+-----+-----+-----+-----+
|           | 47A1 | 47A1 | 47A1 | 47A1 | 47A1 | 47A1 | 47A1 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
```

```

output: ????
```

```

destroid: ????
```

```

description: HELP, I DIDN'T FIND ANY DOCS
```

```

+- _dispDone -----+-----+-----+-----+-----+-----+-----+-----+
|           | 47F1 | 47F1 | 47F1 | 47F1 | 47F1 | 47F1 | 47F1 |
+-----+-----+-----+-----+-----+-----+-----+
input: (CURROW)
      textInverse,(iy+textflags)
      apptextsave,(iy+..)
output: "Done" displayed at the end of the line, just like quitting a BASIC
      program.
destroid: ????
```

```

+- _savedisp -----+
+- _SaveOscreen -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED | 4859 | 4859 | 4859 | 4859 | 4859 | 4859 | 4859 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: PLOTSSCREEN is copied to APD_BUF
destroid: ????
```

```

description: Saves the current screen to the APD-buffer
```

```

+- _ADRMELE -----+-----+-----+-----+-----+-----+-----+-----+
|           | 486D | 486D | 486D | 486D | 486D | 486D | 486D |
+-----+-----+-----+-----+-----+-----+-----+
input: DE = pointer to matrix (size bytes of it)
      ...DE+2 = pointer to first element (1,1)...
      B = row
      C = element
output: HL = pointer to element.
destroid: ????
```

```

description: This computes the address of a matrix element.
```

```

+- _GETMTOOP1 -----+-----+-----+-----+-----+-----+-----+-----+
|           | 487D | 487D | 487D | 487D | 487D | 487D | 487D |
+-----+-----+-----+-----+-----+-----+-----+
input: DE = pointer to matrix (size bytes of it)
      B = row to read from (0..99)
      C = element to read from (0..99)
output: OP1 = value of matrix element
      (What if unsuccessful?)
destroid: ????
```

description: Takes element from matrix and puts it in OP1.

```

+- _PUTTOMAT -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 4889 | 4889 | 4889 | 4889 | 4889 | 4889 | 4889 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = number to store
      DE = pointer to matrix (size bytes of it)
      B  = row to store to (0..99)
      C  = element to store to (0..99)
output: OP1 is written to element of the matrix
      (What if unsuccesfull?)
destroid: ????
description: Stores OP1 to element of matrix.

```

```

+- _CMATFUN -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4891 | 4891 | 4891 | 4891 | 4891 | 4891 | 4891 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

```

```

+- _ADRLELE -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 489D | 489D | 489D | 489D | 489D | 489D | 489D |
+-----+-----+-----+-----+-----+-----+-----+
input: DE = pointer to list (size bytes)
      ...DE+1 = adress of element 1...
      HL = element number you want
output: HL = pointer to element
      A = 0 if number is 'real'
destroid: ????
description: This computes the address of a list element.

```

```

+- _GETLT0OP1 -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 48A9 | 48A9 | 48A9 | 48A9 | 48A9 | 48A9 | 48A9 |
+-----+-----+-----+-----+-----+-----+-----+
input: HL = element to get
      DE = pointer to list (size bytes of list)
output: OP1 = value of list element (OP1/OP2 id complex)
      (What if unsuccesfull?)
destroid: ????
description: Takes element HL from list, at (DE), and puts it in OP1.

```

```

+- _PUTTOL -----+-----+-----+-----+-----+-----+-----+-----+
|                               | 48BD | 48BD | 48BD | 48BD | 48BD | 48BD | 48BD |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = number to store
      (and OP2 if complex)
      DE = pointer to list (size bytes of list)
      HL = element to store to
output: OP1(and OP2) is/are stored to element of list
destroid: ????
description: Puts OP1 (OP1/OP2 if complex) to list at (DE), element number HL

```

```

+- _tofrac -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED         | 48D5 | 48D5 | 48D5 | 48D5 | 48D5 | 48D5 | 48D5 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = value to convert
output: if(succesfull)
      carry = 0,unset
      OP1 = numerator
      OP2 = denominator.

```

```

        if(!succesfull)
            carry = 1,set
            OP1 = original input
destroid: OP1,OP2,OP3,OP4,OP5,OP6
description: Convert number in OP1 to fraction
NOTE: Later on somebody got his hands on the TI documentation of this romcall,
      but this was not 'officialy' released.

```

```

+- _CMP_NUM_INIT  ---+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC      | 48E1 | 48E1 | 48E1 | 48E1 | 48E1 | 48E1 | 48E1 |
+-----+-----+-----+-----+-----+-----+-----+
input: ???
output: ???
destroid: ???
description: ???

```

```

+- _BINOPEXEC  -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC    | 48E5 | 48E5 | 48E5 | 48E5 | 48E5 | 48E5 | 48E5 |
+-----+-----+-----+-----+-----+-----+-----+
input: ???
output: ???
destroid: ???
description: ???

```

```

+- COMPLEX_EXEC  -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC    | 4A14 | 4A14 | 4A14 | 4A14 | 4A14 | 4A14 | 4A14 |
+-----+-----+-----+-----+-----+-----+-----+
input: ???
output: ???
destroid: ???
description: ???

```

```

+- _GetK  -----+-----+-----+-----+-----+-----+-----+
|          | 4A18 | 4A18 | 4A18 | 4A18 | 4A18 | 4A18 | 4A18 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2 = key that is pressed
        OP2 = 0, if no key was pressed
destroid: ???
description: Just like 'GetKey' in BASIC, doesn't wait till a keypress.
            The return values are the same as from _getkey (4CFE).

```

```

+- _SFONT_LEN  -----+-----+-----+-----+-----+-----+-----+
|          | 4A6C | 4A6C | 4A6C | 4A6C | 4A6C | 4A6C | 4A6C |
+-----+-----+-----+-----+-----+-----+-----+
input: HL = character value
output: B      = width of character
        (HL+1) = first byte of character font
destroid: ???
description: return the length of variable width display char

```

```

+- _SETXXOP1  -----+-----+-----+-----+-----+-----+-----+
|          | 4A74 | 4A74 | 4A74 | 4A74 | 4A74 | 4A74 | 4A74 |
+-----+-----+-----+-----+-----+-----+-----+
input: A = number (0 - 63h , 0 - 99d)
output: OP1 = A (converted to FP notation)
destroid: ???
description: OP1 = number in A

```

```

+- _SETXXOP2  -----+-----+-----+-----+-----+-----+-----+
|          | 4A78 | 4A78 | 4A78 | 4A78 | 4A78 | 4A78 | 4A78 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: A = number (0 - 63h , 0 - 99d)
 output: OP2 = A (converted to FP notation)
 destroid: ????
 description: OP2 = number in A

```
+- _SETXXXOP2  -----+-----+-----+-----+-----+-----+-----+
|               | 4A7C | 4A7C | 4A7C | 4A7C | 4A7C | 4A7C | 4A7C |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: HL = number (0 - FFFFh)
 output: OP2 = HL (converted to FP notation)
 destroid: ????
 description: OP2 = number in HL

```
+- _CLine -----+-----+-----+-----+-----+-----+-----+
|               | 4A84 | 4A84 | 4A84 | 4A84 | 4A84 | 4A84 | 4A84 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP4 = y1-coord =| OP1 = x1-coord
 OP3 = x1-coord =| OP2 = y1-coord
 OP2 = y2-coord =| OP3 = x2-coord
 OP1 = x2-coord =| OP4 = y2-coord

output: ????
 destroid: ????
 description: Draw a clipped line from (OP3,OP4) to (OP1,OP2)
 NOTE: * Clipping occurs if points are outside of current RANGE
 * All points are relative to current RANGE window
 * Graphics always written to graphics buffer and/or
 display RAM and, depending on current context active

```
+- _XROOTY -----+-----+-----+-----+-----+-----+-----+
|               | 4A8C | 4A8C | 4A8C | 4A8C | 4A8C | 4A8C | 4A8C |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
 output: OP1
 destroid: ????
 description: $OP1 \wedge (1 / OP2)$

```
+- _YTOX -----+-----+-----+-----+-----+-----+-----+
|               | 4A90 | 4A90 | 4A90 | 4A90 | 4A90 | 4A90 | 4A90 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1,OP2
 output: OP1
 destroid: ????
 description: $OP1 \wedge OP2$

```
+- _CMPBOXINFO -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC     | 4AB0 | 4AB0 | 4AB0 | 4AB0 | 4AB0 | 4AB0 | 4AB0 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
 output: ????
 destroid: ????
 description: ????

```
+- _circcmd -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED   | 4AD4 | 4AD4 | 4AD4 | 4AD4 | 4AD4 | 4AD4 | 4AD4 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

input: FPS (Floating Point Stack):
 1. first pop the x-coord of the centre to the FPS
 2. than the y-coord of the centre to the FPS
 3. and as last the radius
 4. call this routine
 output: a circle is drawn
 destroid: ????

description: Draw a circle

```
+- _grphCirc -----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED      | 4AD8 | 4AD8 | 4AD8 | 4AD8 | 4AD8 | 4AD8 | 4AD8 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: curgx2 = (8870h) x-coord centre
 curgy2 = (886Fh) y-coord centre
 curgx = (886Eh) x-coord on circle
 curgy = (886Dh) y-coord on circle

output: a circle is drawn

destroid: ????

description: Draw a circle

NOTE: This one is slightly strange though, for one, the coordinates are not coordinates, but pixel numbers but it seems like 0,0 is down at the bottom left of the screen?! If someone figures out why, or proves me wrong, please write to me.
 (** like in _IPoint, Henk**)

```
+- _ILINE -----+-----+-----+-----+-----+-----+-----+
|                   | 4AE4 | 4AE4 | 4AE4 | 4AE4 | 4AE4 | 4AE4 | 4AE4 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: B, C - First coordinate (x1, y1)
 D, E - Second coordinate (x2, y2)
 H - Drawing Method:

```
+-----+
| 0 - Turn off points|
| 1 - Turn on points |
| 2 - XOR points     |
+-----+
```

bit ..., (IY+...) (draw only to screen/buffer, etc)

output: Line drawn at given coordinates

destroid: ????

description: Draw an unclipped line from (B,C) to (D,E), no clipping!

NOTE: Coordinate values input are integer, and assumed within screen values.

```
+- _IPOINT -----+-----+-----+-----+-----+-----+-----+
|                   | 4AE8 | 4AE8 | 4AE8 | 4AE8 | 4AE8 | 4AE8 | 4AE8 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: B = x-coord in pixels (0..94)
 C = y-coord in pixels (1..63)
 D = Drawing Method:

```
+-----+
| 0 - light           |
| 1 - dark            |
| 2 - reverse         |
| 3 - test pixel      |
| 4 - copy from display buffer|
+-----+
```

bit ..., (IY+...) (draw only to screen/buffer, etc)

output: point drawn at given coordinates

If(D = 3), zero-flag = set/res if pixel was off/on

destroid: if(PixelTest), all regs are destroid

if(!PixelTest), no regs are destroid

description: Change a point on the screen, no clipping!

NOTE: * Coordinate values input are integer and assumed within screen values

* All register and flags are preserved

UNLESS PIXEL TEST IS THE COMMAMD THEN NO REGS ARE PRESERVED.

* No plotting occurs if point is outside of current RANGE.

* (BC) is (X,Y), the (0,0) point is lower left corner

* Graphics always written to graphics buffer and/or display RAM and, depending on PlotLoc

flag

```

+- _CPointsS -----+-----+-----+-----+-----+-----+-----+
|                               | 4B00 | 4B00 | 4B00 | 4B00 | 4B00 | 4B00 | 4B00 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: FPS1 = x-coord of point to change

FPST = y-coord of point to change

A = command to perform:

```

+-----+
| 0 - Turn on points | DIFFERENT
| 1 - Turn off points| FROM
| 2 - XOR points     | _ILINE
+-----+

```

output: point is changed

destroid: ????

description: Change a windowed point on the screen

NOTE: * To set FPS1,FPS2 do the following

1) set OP1 = x-coord value

2) call _PUSHREAL01

3) set OP1 = y-coord value

4) call _PUSHREAL01

* Clipping occurs if point is outside of current RANGE. <= ??

* Point drawn is relative to current RANGE window. <= ??

* Graphics always written to graphics buffer and/or <= ??

display RAM and, depending on current context active. <= ??

```

+- _GDISPTOKEN -----+-----+-----+-----+-----+-----+-----+
|                               | 4B20 | 4B20 | 4B20 | 4B20 | 4B20 | 4B20 | 4B20 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: (CURGY) = y-coord/pixel row to start writing

(CURGX) = x-coord/pixel col to start writing

DE = token to display

output: carry = set if it hit right edge of screen

destroid: ????

description: Decode a token an write it's string to the LCD & PLOTSSCREEN
using variable font.

```

+- _COORDDISP -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4B2C | 4B2C | 4B2C | 4B2C | 4B2C | 4B2C | 4B2C |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _COPYRNG -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4B40 | 4B40 | 4B40 | 4B40 | 4B40 | 4B40 | 4B40 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CPTDELY -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4B5C | 4B5C | 4B5C | 4B5C | 4B5C | 4B5C | 4B5C |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _ALLEQ -----+-----+-----+-----+-----+-----+-----+

```

```

| SQUISH.INC          | 4BAC | 4BAC | 4BAC | 4BAC | 4BAC | 4BAC | 4BAC |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _CHKTEXTCURS -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 4BC8 | 4BC8 | 4BC8 | 4BC8 | 4BC8 | 4BC8 | 4BC8 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _REGRAPH -----+-----+-----+-----+-----+-----+-----+
|                      | 4BCC | 4BCC | 4BCC | 4BCC | 4BCC | 4BCC | 4BCC |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: Equations (Y= & Stat-plots) graphed to LCD & PLOTSSCREEN
destroid: BC
          HL
          DE
          (only A is preserved)
description: Graphs all equations and Stat-plots

+- _Ceiling -----+-----+-----+-----+-----+-----+-----+
|                      | 4BE0 | 4BE0 | 4BE0 | 4BE0 | 4BE0 | 4BE0 | 4BE0 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1,OP2
output: OP1
destroid: ????
description: -intgr(OP1,OP2)

+- _PUTXY -----+-----+-----+-----+-----+-----+-----+
|                      | 4BE4 | 4BE4 | 4BE4 | 4BE4 | 4BE4 | 4BE4 | 4BE4 |
+-----+-----+-----+-----+-----+-----+-----+
input: real 'X'
       real 'Y'
output: coordinates displayed at the bottom of the screen
destroid: ????
description: display x/y coordinate on graphics screen

+- _PDspGrph -----+-----+-----+-----+-----+-----+-----+
|                      | 4BEB | 4BEB | 4BEB | 4BEB | 4BEB | 4BEB | 4BEB |
+-----+-----+-----+-----+-----+-----+-----+
input: graph dirty/clean flag

utput: if(clean), copy backup-buffer (PLOTSSCREEN, gbuf) to LCD
       if(dirty), full regraph (plot all Y= functions and Stat-plots)
       => call _REGRAPH
destroid: ????
description: Display graph via program control, or annotation. If graph is
           "clean" then copy backup to disp else invoke a full regraph.

+- _HORIZCMD -----+-----+-----+-----+-----+-----+-----+
|                      | 4BEF | 4BEF | 4BEF | 4BEF | 4BEF | 4BEF | 4BEF |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = y-coord of horizontal line
output: horizontal line drawn
destroid: ????
description: Horizontal line drawn at y-coord in OP1

```



```

+- _VERTCMD -----+-----+-----+-----+-----+-----+-----+-----+
|           | 4BF3 | 4BF3 | 4BF3 | 4BF3 | 4BF3 | 4BF3 | 4BF3 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = x-coord of vertical line
output: Vertical line drawn
destroid: ????
description: Vertical line drawn at x-coord in OP1

+- _VPUTBLANK -----+-----+-----+-----+-----+-----+-----+-----+
|           | 4C53 | 4C53 | 4C53 | 4C53 | 4C53 | 4C53 | 4C53 |
+-----+-----+-----+-----+-----+-----+-----+
input: write to buffer flag (????)
      ?? black/white text flag ??
output: a space is written to the screen
        (PENCOL) updated
        (PENROW) updated
destroid: ????
description: Write a space in variable font to display (penrow, pencol).
            Update(PENROW),(PENCOL)

+- _BUFPEEK -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC | 4C82 | 4C82 | 4C82 | 4C82 | 4C82 | 4C82 | 4C82 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _BUFPEEK3 -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC | 4C8E | 4C8E | 4C8E | 4C8E | 4C8E | 4C8E | 4C8E |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _getKey -----+-----+-----+-----+-----+-----+-----+-----+
|           | 4CFE | 4CFE | 4CFE | 4CFE | 4CFE | 4CFE | 4CFE |
+-----+-----+-----+-----+-----+-----+-----+
input: runindiconly,(iy+indicflags)
      0, run-indicator and APD is done
      1, only run-indicator is shown, no APD'ing
output: A = key that was pressed
        = 0 (zero) if [ON] key pressed
        (interrupt handler gets on this one first)
destroid: ????
description: Waits till a key is pressed (low powermode, with HALT), and
            returns the corresponding value. Automatic power-down counter
            (APD) is turned on until a valid key has been received.
            This routine also handles:
              1. [2nd] and [Alpha] shift keys.
              2. Contrast settings.
            ... See other docs for return values...

+- _formDCplx -----+-----+-----+-----+-----+-----+-----+-----+
|           | 4D2E | 4D2E | 4D2E | 4D2E | 4D2E | 4D2E | 4D2E |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1/OP2 = complex number to format
output: (fmtString) = (929Ah) = string of characters (zero terminated, ASCIIIZ)
        BC          = length of string
        OP1 type    = splxobj

```

destroid: ????

description: This routine converts the complex number pair in OP1/OP2 to displayable characters according to the current format settings.

```

+- _formReal -----+-----+-----+-----+-----+-----+-----+
|                               | 4D32 | 4D32 | 4D32 | 4D32 | 4D32 | 4D32 | 4D32 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: A = maximum width of output (max. number of characters)

OP1 = 'real number' to be formatted

output: OP3/OP4 = string of characters (zero terminated, ASCIIIZ)

BC = length of string

destroid: ????

description: This routine converts the number in OP1 to displayable characters according to the current format settings

```

+- _CONVKEYTOTOK ---+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4DBE | 4DBE | 4DBE | 4DBE | 4DBE | 4DBE | 4DBE |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CLEANALL -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4E2A | 4E2A | 4E2A | 4E2A | 4E2A | 4E2A | 4E2A |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CATALOGCHK -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4E64 | 4E64 | 4E64 | 4E64 | 4E64 | 4E64 | 4E64 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CKENDLINERR -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4EA4 | 432A | 432A | 432A | 432A | 432A | 432A |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _AutoSelect -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4D72 | 4D72 | 4D72 | 4D72 | 4D72 | 4D72 | 4D72 |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _CONVLCTOLR -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC         | 4DEE | 4DEE | 4DEE | 4DEE | 4DEE | 4DEE | 4DEE |
+-----+-----+-----+-----+-----+-----+-----+

```

input: ????

output: ????

destroid: ????

description: ????

```

+- _inclistsize -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED          | 4DF6 | 4DF6 | 4DF6 | 4DF6 | 4DF6 | 4DF6 | 4DF6 |
+-----+-----+-----+-----+-----+-----+-----+
input: A = type of list.
      DE = pointer to data size of list (use _chkfindsym)

```

output: DE = updated pointer to begin of the list.
 HL = the new size of the list.

destroid: ????

description: Increment list size by one

```

+- _CLOSEPROG -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4E06 | 4E06 | 4E06 | 4E06 | 4E06 | 4E06 | 4E06 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ?? closes a program (BASIC/ASM) ??

```

```

+- _parseinp  -----+-----+-----+-----+-----+-----+-----+-----+
| UNDOCUMENTED          | 4E8C | 4E8C | 4E8C | 4E8C | 4E8C | 4E8C | 4E8C |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1 = name of expression to ◆parse◆.
output: Results vary, 'refer to tutorials'
      which means that I, Henk Poley, have to find out how this one works
destroid: ????
description: Parses information in OP1. This can have various results,
      ranging from evaluating expressions, to running BASIC programs.

```

```

+- _OP2SET60 -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 4EA8 | 4EA8 | 4EA8 | 4EA8 | 4EA8 | 4EA8 | 4EA8 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP2
destroid: ????
description: OP2 = 60

```

```

+- _CMP_STATPTR -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 4EB0 | 4EB0 | 4EB0 | 4EB0 | 4EB0 | 4EB0 | 4EB0 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

```

```

+- _STOSYSTOK -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 4EB8 | 4EB8 | 4EB8 | 4EB8 | 4EB8 | 4EB8 | 4EB8 |
+-----+-----+-----+-----+-----+-----+-----+
input: A = number of system variable (see ti83asm.inc)
      OP1 = value to store in system variable
output: OP1 is saved in system token given in A
      OP1 is preserved
destroid: ????
description: Store value in OP1 to system variable (specified by token in A)

```

```

+- _STOY -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 4EC8 | 4EC8 | 4EC8 | 4EC8 | 4EC8 | 4EC8 | 4EC8 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1/OP2 = number to be stored in 'Y' (OP1 and OP2 if complex)
output: OP1 is saved in 'Y' if possible
      if 'Y' wasn't created, it will be created

```

destroid: ????

--comment--

OUTPUT : DATA STORED IF POSSIBLE.

ORIGINAL CONTENTS OF OP1 RETURNED IF REAL <= ????

OR COMPLEX, ELSE Y VAR NAME <= ????

--comment--

```
+ - _CONVOP1 -----+-----+-----+-----+-----+-----+-----+
|                   | 4ECF | 4ECF | 4ECF | 4ECF | 4ECF | 4ECF | 4ECF |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1

output: A = LSB of hex value

DE = entire hex value

destroid: ????

description: Convert OP1 to a 2 byte hex value in DE

NOTE: Error if exponent of OP1 is bigger than 3

=> error if('OP1 exp' > 3)

ERROR-HANDLER!!!

```
+ - _STOX -----+-----+-----+-----+-----+-----+-----+
|                   | 4ED4 | 4ED4 | 4ED4 | 4ED4 | 4ED4 | 4ED4 | 4ED4 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1/OP2 = number to be stored in 'X' (OP1 and OP2 if complex)

output: OP1 is saved in 'X' if possible

if 'X' wasn't created, it will be created

destroid: ????

--comment--

OUTPUT : DATA STORED IF POSSIBLE.

ORIGINAL CONTENTS OF OP1 RETURNED IF REAL <= ????

OR COMPLEX, ELSE X VAR NAME <= ????

--comment--

```
+ - _STOOTHER -----+-----+-----+-----+-----+-----+-----+
|                   | 4ED8 | 4ED8 | 4ED8 | 4ED8 | 4ED8 | 4ED8 | 4ED8 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1 = variable name (user vars only)

FPST = value to store (Floating Point STack)

output: number in FPST is stored to variable named in OP1

if store was possible:

value is popped from FPST into OP1 (and OP2 if complex)

is store was impossible:

OP1 = variable name

destroid: ????

description: Stores into a specified user variable

NOTE: Error if variable is already Program,?? DB ??, Picture

(If variable has the wrong type...)

example:

```
call  _OP1SET4      ; OP1 = 4
call  _PUSHREAL01   ; Push OP1 on FPST
call  _ZEROOP1      ; OP1 = all 0
```

```
ld     h1,'W'
ld     (OP1+1),h1    ; OP1 = name of variable 'W'
call  _STOOTHER      ; Store 4 variable 'W'
```

```
+ - _RCLY -----+-----+-----+-----+-----+-----+-----+
|                   | 4EE0 | 4EE0 | 4EE0 | 4EE0 | 4EE0 | 4EE0 | 4EE0 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none

output: OP1/OP2 = value of variable
 destroid: ????
 description: Recalls value of 'real Y' in OP1 (and OP2 if complex)

```
+ - _RCLX -----+-----+-----+-----+-----+-----+-----+
|                   | 4EE8 | 4EE8 | 4EE8 | 4EE8 | 4EE8 | 4EE8 | 4EE8 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: none
 output: OP1/OP2 = value of variable
 destroid: ????
 description: Recalls value of 'real X' in OP1 (and OP2 if complex)

```
+ - _RCLVARSYM -----+-----+-----+-----+-----+-----+-----+
|                   | 4EEC | 4EEC | 4EEC | 4EEC | 4EEC | 4EEC | 4EEC |
+-----+-----+-----+-----+-----+-----+-----+
```

input: OP1(MSB) = type of variable
 OP1(rest) = name of var to recall (zero terminated string, ASCIIIZ)
 output: if real or complex:
 OP1/OP2 = value of variable
 if not real or complex:
 A = data type of symbol
 carry = unset, 0
 OP1(MSB) = type of variable
 OP1(rest) = name of var to recall (ASCIIIZ)
 HL = pointer to start of sybol entry in VAT
 DE = pointer to data
 destroid: ????
 description: Recalls value of variable to OP1 (and OP2 as well if complex)
 NOTE: Error if variable does not exist!

```
+ - _RCLSYSTOK -----+-----+-----+-----+-----+-----+-----+
|                   | 4EF0 | 4EF0 | 4EF0 | 4EF0 | 4EF0 | 4EF0 | 4EF0 |
+-----+-----+-----+-----+-----+-----+-----+
```

input: A = system variable token (see ti83asm.inc)
 output: OP1 = value/contents of system variable
 destroid: ????
 description: Recalls value of a system variable

```
+ - _COMMAERRF -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC        | 4F8E | 4F8E | 4F8E | 4F8E | 4F8E | 4F8E | 4F8E |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
 output: ????
 destroid: ????
 description: ????

```
+ - _CKFETCHVAR -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC        | 4FCD | 4FCD | 4FCD | 4FCD | 4FCD | 4FCD | 4FCD |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
 output: ????
 destroid: ????
 description: ????

```
+ - _PARSER_EXEC -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC        | 4FDF | 4FDF | 4FDF | 4FDF | 4FDF | 4FDF | 4FDF |
+-----+-----+-----+-----+-----+-----+-----+
```

input: ????
 output: ????
 destroid: ????
 description: ????

```

+- _CKENDEXP -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 4FF5 | 4FF5 | 4FF5 | 4FF5 | 4FF5 | 4FF5 | 4FF5 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _CKPARSEND -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 4FFE | 4FFE | 4FFE | 4FFE | 4FFE | 4FFE | 4FFE |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _CONVDIM -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 5010 | 5010 | 5010 | 5010 | 5010 | 5010 | 5010 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- PGMIO_EXEC -----+
+ pgmio_exec          +-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC          | 50B2 | 50B2 | 50B2 | 50B2 | 50B2 | 50B2 | 50B2 |
+-----+-----+-----+-----+-----+-----+-----+
input: 'See tutorials' (Well, I have to find out how this one works)
output: 'See tutorials' (idemdito)
destroid: ????
description: From AsmGuru:
              "Not too sure about this one, used in getting input.
              Basically, Linus says that this uses the value in ASM_IND_CALL
              to determine what other romcalls and sequences to be called.
              ...Complicated..."

ASM_IND_CALL = 0d   String input   :
                1d   Numerical input:

+- _RANDOM -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 50B6 | 50B6 | 50B6 | 50B6 | 50B6 | 50B6 | 50B6 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: OP1
destroid: HL
          ????
description: OP1 = (pseudo) random number

+- _STORAND -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 50BA | 50BA | 50BA | 50BA | 50BA | 50BA | 50BA |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????

+- _FACTORIAL -----+-----+-----+-----+-----+-----+-----+-----+
|                   | 50C6 | 50C6 | 50C6 | 50C6 | 50C6 | 50C6 | 50C6 |
+-----+-----+-----+-----+-----+-----+-----+
input: OP1
output: OP1

```

destroid: ????

description: OP1 = (OP1)!

NOTE: beware of the error-handler

```

+- _EXEC_ASSEMBLY --+
+ _exec_assembly +-----+-----+-----+-----+-----+-----+
|                | 5102 | 5102 | 5102 | 5102 | 5102 | 5102 | 5102 |
+-----+-----+-----+-----+-----+-----+
input: OP1 = 05h, program name (zero terminated, ASCIIIZ)
output: ????


destroid: ????



description: execute an (??non squished??) assembly program



NOTE: Only use this ROMcall if you know EXACTLY what you are doing.  

It is very easy to mess thing up (crash/RAM FAIL/etc.)


```

```

+- _outputExpr -----+-----+-----+-----+-----+-----+-----+
|                | 5106 | 5106 | 5106 | 5106 | 5106 | 5106 | 5106 |
+-----+-----+-----+-----+-----+-----+
input: H = column number (1..16)
      L = row number (1..8)
      OP1(+OP2) = value to display
      OP1      can be a real number
      OP1/OP2 can be a complex number
      OP1      can be a variable name of any displayable type
output: value displayed at H,L (x,y)
destroid: ????


description: position cursor then display value


```

```

+- _CKVALDELX -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC       | 5149 | 5149 | 5149 | 5149 | 5149 | 5149 | 5149 |
+-----+-----+-----+-----+-----+-----+
input: ????


output: ????



destroid: ????



description: ????


```

```

+- _CKVALDELTA -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC       | 5152 | 5152 | 5152 | 5152 | 5152 | 5152 | 5152 |
+-----+-----+-----+-----+-----+-----+
input: ????


output: ????



destroid: ????



description: ????


```

```

+- _GRBUFCLR -----+-----+-----+-----+-----+-----+-----+
|                | 515B | 515B | 515B | 515B | 515B | 515B | 515B |
+-----+-----+-----+-----+-----+-----+
input: none
output: PLOTSSCREEN, GraphBuffer, is cleared
destroid: ????

```

```

+- _GRBUFCPY_V -----+-----+-----+-----+-----+-----+-----+
|                | 5164 | 5164 | 5164 | 5164 | 5164 | 5164 | 5164 |
+-----+-----+-----+-----+-----+-----+
input: none
output: PLOTSSCREEN, GraphBuffer is written to the screen
destroid: ????

```

TIP: Use _IonFastCopy, or paste it into your program if you don't use Ion
(The routine is included in Ion.zip, you'll find it at www.TiCalc.org).
It is much much faster.

```
+ - _CLRGRAPHXY -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 5176 | 5176 | 5176 | 5176 | 5176 | 5176 | 5176 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????
```

```
+ - GRAPH_EXEC -----+-----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC           | 5188 | 5188 | 5188 | 5188 | 5188 | 5188 | 5188 |
+-----+-----+-----+-----+-----+-----+-----+
input: ????
output: ????
destroid: ????
description: ????
```

```
+ - _Axes -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 519E | 519E | 519E | 519E | 519E | 519E | 519E |
+-----+-----+-----+-----+-----+-----+-----+
input: ?? factors ??
output: ????
destroid: ????
description: Plot the axes on the screen based on current factors
```

```
+ - _setPenX -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 51A7 | 51A7 | 51A7 | 51A7 | 51A7 | 51A7 | 51A7 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: (PENROW)
        (PENCOL)
destroid: ????
description: Set pen location (PENROW, PENCOL) to 'zone X'.
              (Where graph writes 'x' in function trace)
```

```
+ - _setPenY -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 51B0 | 51B0 | 51B0 | 51B0 | 51B0 | 51B0 | 51B0 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: (PENROW)
        (PENCOL)
destroid: ????
description: Set pen location (PENROW, PENCOL) to 'zone Y'.
              (Where graph writes 'y' in function trace)
```

```
+ - _setPenT -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 51B9 | 51B9 | 51B9 | 51B9 | 51B9 | 51B9 | 51B9 |
+-----+-----+-----+-----+-----+-----+-----+
input: none
output: (PENROW)
        (PENCOL)
destroid: ????
description: Set pen location (PENROW, PENCOL) to 'zone T'.
              (Where graph writes 't' in parametric trace)
```

```
+ - _DISPOP1A -----+-----+-----+-----+-----+-----+-----+-----+
|                     | 51D4 | 51D4 | 51D4 | 51D4 | 51D4 | 51D4 | 51D4 |
+-----+-----+-----+-----+-----+-----+-----+
input: A   = Maximum number of characters to be displayed
      OP1 = FP number to be displayed
      (PENROW)
      (PENCOL)
      textInverse,(iy+textflags)
```



```

    textWrite,(iy+textflags)
output: number in OP1 is rounded and displayed in small font
destroid: ????
description: round(OP1) to current 'fix' value, then display it in variable font.

```

```

+- IO_EXEC -----+
+  _IO_EXEC      +-----+-----+-----+-----+-----+-----+
|                | 51EF | 51EF | 51EF | 51EF | 51EF | 51EF | 51EF |
+-----+-----+-----+-----+-----+-----+-----+

```

```

input: ASM_IND_CALL
output: ????
destroid: ????
description: IO operation is made (link-port)
NOTE: Beware of the error-handler

```

```

ASM_IND_CALL = 11d  SENDABYTE      : This routine sends a byte of data across
                                   the data lines using the TI-83 bit protocol.
                                   If there is no response within about 2
                                   seconds an error is generated. The data to
                                   be sent needs to be in the accumulator.

19d  REC1STBYTE      : This routine goes into idle or low power
                                   mode and waits for the data lines to change.
                                   Then reads a byte of data using the TI-83 bit
                                   protocol. This only reads the 1st byte of
                                   data. The byte is returned in the accumulator.

20d  REC1STBYTENC    : The same as REC1STBYTE except that the cursor
                                   does not flash. The byte is returned in the
                                   accumulator.

22d  RECABYTE        : This routine looks at the data lines for
                                   activity for about 2 seconds and reads in a
                                   single byte of data. If no data is found an
                                   error will be generated. The byte is returned
                                   in the accumulator.

```

```

+- EXECUTE_Z80 -----+-----+-----+-----+-----+-----+-----+
| SQUISH.INC      | 52E5 | 52E5 | 52E5 | 52E5 | 52E5 | 52E5 | 52E5 |
+-----+-----+-----+-----+-----+-----+-----+
| JP to:          |  ??? |  ??? |  ??? |  ??? |  ??? |  ??? | (9327)|
+-----+-----+-----+-----+-----+-----+-----+

```

```

input:
output:
destroid:
description: The last romcall in the jumptable (ROM 1.10)

```