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LAB : 03

1. Compute tan(x)

=> x = 45

Code:

```
data segment
th dd 45.0
d dd 180.0
pi dd 3.1428
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fld th
fldpi
fmul
fdiv d
fptan
fxch
fst res
int 03h
code ends
end start
```

Output :

[EIP]=80486 IPTR=000000 UPTR=000000 Z=[EIP]↓		
Valid ST(0) 1	im=1	ie=0
Valid ST(1) 1	dm=1	de=0
Empty ST(2)	zm=1	ze=0
Empty ST(3)	om=1	oe=0
Empty ST(4)	um=1	ue=0

2. Compute sin(x)

=> x = 60

Code :

```
data segment
th dd 60.0
d dd 180.0
one dd 1.0
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fld th
fldpi
fmul
fdiv d
fptan
fxch
fst res
fld one
fld res
fmul res
fadd
fsqrt
fdiv
fst res
int 03h
```

code ends
end start

Output :

```
IPTR=00000 UPTR=00000 Z=11111
Valid ST(0) 0.86602541544215711 im=1 ie=0
Valid ST(1) 1 dm=1 de=0
```

3. Compute cos(x)

=> x = 60

Code :

```
data segment
th dd 60.0
d dd 180.0
one dd 1.0
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fld th
fldpi
fmul
fdiv d
fptan
fxch
fstp res
fld one
fld res
fmul res
fadd
fsqrt
fdiv
```

```

fst res
int 03h
code ends
end start

```

Output:

[EIP]=80486 IPTR=000000 UPTR=000000 Z=1		
Valid ST(0) 0.50000000673058689	im=1	ie=0
Empty ST(1)	dm=1	de=0
Empty ST(2)	zm=1	ze=0

5. Compute $\text{xsqrt}(y) + \text{ysqrt}(x)$

=> $x = 4.0$, $y = 4.0$

Code:

```

data segment
x dd 4.0
y dd 4.0
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fld x
fld y
fsqrt
fmul
fld y
fld x
fsqrt
fmul
fadd
fst res

int 03h
code ends

```

end start

Output :

[EIP]=80486 IPTR=00000 UPCODE=000 UPTR=00000 Z=1		
Valid ST(0) 16	im=1	ie=0
Empty ST(1)	dm=1	de=0

6. Find resonance frequency

=> l = 4.0 , c = 4.0

Code : .

data segment

c1 dd 2.0

c2 dd 1.0

l dd 4.0

c dd 4.0

res dd ?

data ends

code segment

assume cs:code , ds:data

start:

mov ax, data

mov ds, ax

finit

fld c2

fld l

fmul c

fsqrt

fmul c1

fldpi

fmul

fdiv

fst res

int 03h

code ends

end start

Output:

[]=80486 IPTR=00000 OPCode=000 OPTR=00000=2=[↑][↓]		
Valid ST(0) 0.039788735772973834	im=1	ie=0
Empty ST(1)	dm=1	de=0
Empty ST(2)	zm=1	ze=0

7. Compute tan inverse (y/x)

=> x = 1.0 y = 1.0

Code :

```
data segment
x dd 1.0
y dd 1.0
c1 dd 180.0
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fld y
fld x
fpatan
fmul c1
fldpi
fdiv
fst res
int 03h
code ends
end start
```

Output:

[]=80486 IPTR=00000 OPCode=000 OPTR=00000=2=[↑][↓]		
Valid ST(0) 45	im=1	ie=0
Empty ST(1)	dm=1	de=0
Empty ST(2)	zm=1	ze=0

8. Compute area of a cone.

=> l = 2.0, r = 2.0

Code :

```
data segment
l dd 2.0
r dd 2.0
c1 dd 180.0
res dd ?
data ends

code segment

assume cs:code , ds:data
start:
mov ax, data
mov ds, ax
finit
fldpi
fld l
fld r
fadd
fmul
fmul r
fst res
int 03h
code ends
end start
```

Output:

[EIP]=80486 IPTR=00000000 OP CODE=0000 IPTR=00000000 Z=0 O=0			
Valid ST(0)	25.132741228718346	im=1	ie=0
Empty ST(1)		dm=1	de=0