

### Task 1:

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program:... - X
Z:\>mount c c:\tmp
Drive C is mounted as local directory c:\tmp\

Z:\>c:

C:\>edit T1_LAB3.asm

C:\>Nasm T1_LAB3.asm -o t1.com

C:\>t1.com

C:\>Nasm T1_LAB3.asm -l t1.lst

C:\>Type t1.lst
 1                                     [org 0x100]
 2 00000000 B80300                   mov ax,3
 3 00000003 050100                   add ax,1
 4 00000006 B80200                   mov ax,2
 5 00000009 BB0300                   mov bx,3
 6 0000000C 29D8                   sub ax,bx
 7 0000000E 01D8                   add ax,bx
 8 00000010 B8004C                   mov ax,0x4c00
 9 00000013 CD21                   int 0x21

C:\>Afd t1.com
```

DX 0002 SI 0000 CS 19F5 IP 0110 Stack +0 0000 Flags 7211	BX 0003 DI 0000 DS 19F5 +2 20CD	CX 0015 BP 0000 ES 19F5 +4 9FFF OF DF IF SF ZF AF PF CF	DX 0000 SP FFFE SS 19F5 +6 EA00 0 0 1 0 0 1 0 1
CMD > █			
010E 01D8 ADD AX,BX	0110 B8004C MOV AX,4C00	0113 CD21 INT 21	0115 D2 DB D2
0116 31C0 XOR AX,AX	0118 8956E4 MOV [BP-1C],DX	011B 8946E6 MOV [BP-1A],AX	011E C746F60000 MOV [BP-0A1],0000
0123 8B46F6 MOV AX,[BP-0A1]			
<b>1</b> 0 1 2 3 4 5 6 7	<b>2</b> 0 1 2 3 4 5 6 7	<b>3</b> 0 1 2 3 4 5 6 7	<b>4</b> 0 1 2 3 4 5 6 7
DS:0000 CD 20 FF 9F 00 EA F0 FE	DS:0008 AD DE 1B 05 C5 06 00 00	DS:0010 18 01 10 01 18 01 92 01	= f.Ω≡■ i ..+...
DS:0010 18 01 10 01 18 01 92 01	DS:0018 01 01 01 00 02 FF FF FF	DS:0020 FF FF FF FF FF FF FF FF	.....ff. ....
DS:0020 FF FF FF FF FF FF FF	DS:0028 FF FF FF FF EB 19 C0 11	DS:0030 A2 01 14 00 18 00 F5 19	δ. L.
DS:0030 A2 01 14 00 18 00 F5 19	DS:0038 FF FF FF FF 00 00 00 00	DS:0040 05 00 00 00 00 00 00 00	6.....J. ....
DS:0040 05 00 00 00 00 00 00 00	DS:0048 00 00 00 00 00 00 00 00		..... . ....

1 Step | 2 ProcStep | 3 Retrieve | 4 Help ON | 5 SBRK | Menu 6 | 7 up | 8 dn | 9 le | 10 ri

## Task 2:

The screenshot shows the emu8086 interface. The assembly window displays the following code:

```
01 mov ax,4
02 mov bx,6
03 mov cx,9
04 add ax,bx,cx
05 sub bx,4
```

The registers window shows the following values:

register	H	L
AX	00	0A
BX	00	02
CX	00	09
DX	00	00
CS	0100	
IP	0022	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The memory dump windows show the following data at address 0100:

Address	Value	Content
0100:0000	00	NULL
0100:0001	34	052 4
0100:0002	12	018 t
0100:0003	BB	187 j
0100:0004	24	036 s
0100:0005	00	000 NULL
0100:0006	80	138 e
0100:0007	DE	222 i
0100:0008	80	139 i
0100:0009	C0	200 L
0100:000B	90	144 e
0100:000C	90	144 e
0100:000D	90	144 e
0100:000E	90	144 e
0100:000F	90	144 e
0100:0010	90	144 e
0100:0011	90	144 e
0100:0012	90	144 e
0100:0013	90	144 e
0100:0014	90	144 e
0100:0015	90	144 e

The status bar shows "step delay ms: 0".

## Task 3:

The screenshot shows the emu8086 interface. The assembly window displays the following code:

```
01 mov ax,1234h
02 mov bx,24h
03 mov bl,dh
04 mov cx,ax
```

The registers window shows the following values:

register	H	L
AX	00	00
BX	00	00
CX	00	00
DX	00	00
CS	0100	
IP	0000	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The memory dump windows show the following data at address 0100:

Address	Value	Content
0100:0000	B8	184 j
0100:0001	34	052 4
0100:0002	12	018 t
0100:0003	BB	187 j
0100:0004	24	036 s
0100:0005	00	000 NULL
0100:0006	80	138 e
0100:0007	DE	222 i
0100:0008	80	139 i
0100:0009	C0	200 L
0100:000B	90	144 e
0100:000C	90	144 e
0100:000D	90	144 e
0100:000E	90	144 e
0100:000F	90	144 e
0100:0010	90	144 e
0100:0011	90	144 e
0100:0012	90	144 e
0100:0013	90	144 e
0100:0014	90	144 e
0100:0015	90	144 e

The status bar shows "step delay ms: 0".

## Task 4:

The screenshot shows the emu8086 IDE interface. On the left, the assembly editor window displays the source code:

```
01 mov ax,9875h
02 mov bx,3244h
03 mov cx,6745h
04 mov dx,1342h
05 add ax,bx,cx
06 sub dx,ax
07
```

The assembly window shows the assembly code at address 0100:0024. The registers window shows the following values:

Registers	H	L
AX	CA	B9
BX	32	44
CX	67	45
DX	48	89
CS	0100	
IP	0024	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The CPU window shows the assembly code at address 0100:0024:

```
0100:0024: F4 244 C
```

The Registers window shows the following values:

Registers	H	L
AX	00	0C
BX	00	04
CX	00	01
DX	00	01
CS	0100	
IP	002C	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The Registers window shows the following values:

Registers	H	L
AX	CA	B9
BX	32	44
CX	67	45
DX	48	89
CS	0100	
IP	0024	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The Registers window shows the following values:

Registers	H	L
AX	CA	B9
BX	32	44
CX	67	45
DX	48	89
CS	0100	
IP	0024	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

## Task 5:

The screenshot shows the emu8086 IDE interface. On the left, the assembly editor window displays the source code:

```
01 mov ax,2
02 mov bx,6
03 mov cx,1
04 mov dx,9
05 add ax,bx,cx,dx
06 sub dx,ax
07 mov ax,8
08 mov bx,4
09 add ax,bx
10
```

The assembly window shows the assembly code at address 0100:002C. The registers window shows the following values:

Registers	H	L
AX	00	0C
BX	00	04
CX	00	01
DX	00	01
CS	0100	
IP	002C	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The CPU window shows the assembly code at address 0100:002C:

```
0100:002C: F4 244 C
```

The Registers window shows the following values:

Registers	H	L
AX	00	0C
BX	00	04
CX	00	01
DX	00	01
CS	0100	
IP	002C	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

The Registers window shows the following values:

Registers	H	L
AX	CA	B9
BX	32	44
CX	67	45
DX	48	89
CS	0100	
IP	0024	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

## Task 6:

The screenshot shows a 8086 assembly debugger interface with two main windows.

**Main Window (Left):** Displays assembly code in the left pane and a memory dump in the right pane. The assembly code is:

```
01 mov ax,21
02 mov bx,16
03 mov cx,1
04 mov dx,9
05 add cx,dx
06 sub dx,ax
07 mov ax,22
08 mov bx,?
09 add ax,bx
10
```

The memory dump shows registers with values:

	H	L
AX	00	10
BX	00	07
CX	00	0A
DX	FF	F4
CS	0100	
IP	002C	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

**Right Window (Source Code):** Displays the original C source code:

```
01 mov ax,21
02 mov bx,16
03 mov cx,1
04 mov dx,9
05 add cx,dx
06 sub dx,ax
07 mov ax,22
08 mov bx,?
09 add ax,bx
10
11
12
```

The instruction at address 002C (mov ax,21) is highlighted in yellow.