COAL LAB 2

Questions:

1. Implement all of these equations in assembly language.
- 47 + 39 + 60 + 85 + 64+54o-0Ah
- 30- 9 + 186 – 150
- 101110 + 50Ah + 6710d + 1010001 + F
- 10001101 – D83h + 385+10 + 1111101 – E+F

2. Write a program in assembly language that implements following expression:
- edx = eax + 1 + ebx– ecx + 0Ah-65o+73d
- eax = 5ADh – ebx + 65o + 65d – 11110111 + 150
- ebx = 5ADh – eax + 65d + 73o – 11100101 + 7Bh
- ecx = 110010101101b + 45h-73o + ebx -ecx + 1

Exercise 1

1)47 + 39 + 60 + 85 + 64+54o-0Ah

```
329

    EAX=00000149  EBX=00000027  ECX=0000003C  EDX=0000002C
    ESI=00A210AA  EDI=00A210AA  EBP=00FDF894  ESP=00FDF888
    EIP=00A23692  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


C:\Users\anas\source\repos\Lab_02\Debug\Lab_02.exe (process 18484) exited with code 0.
Press any key to close this window . . .
```

Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 47d
mov ebx , 39d
mov ecx ,  60d
mov edx , 54o
add eax , ebx
add eax , ecx
add eax , edx
add eax , 85d
add eax , 64d
sub eax , 0Ah
call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```

2) 30- 9 + 186 − 150
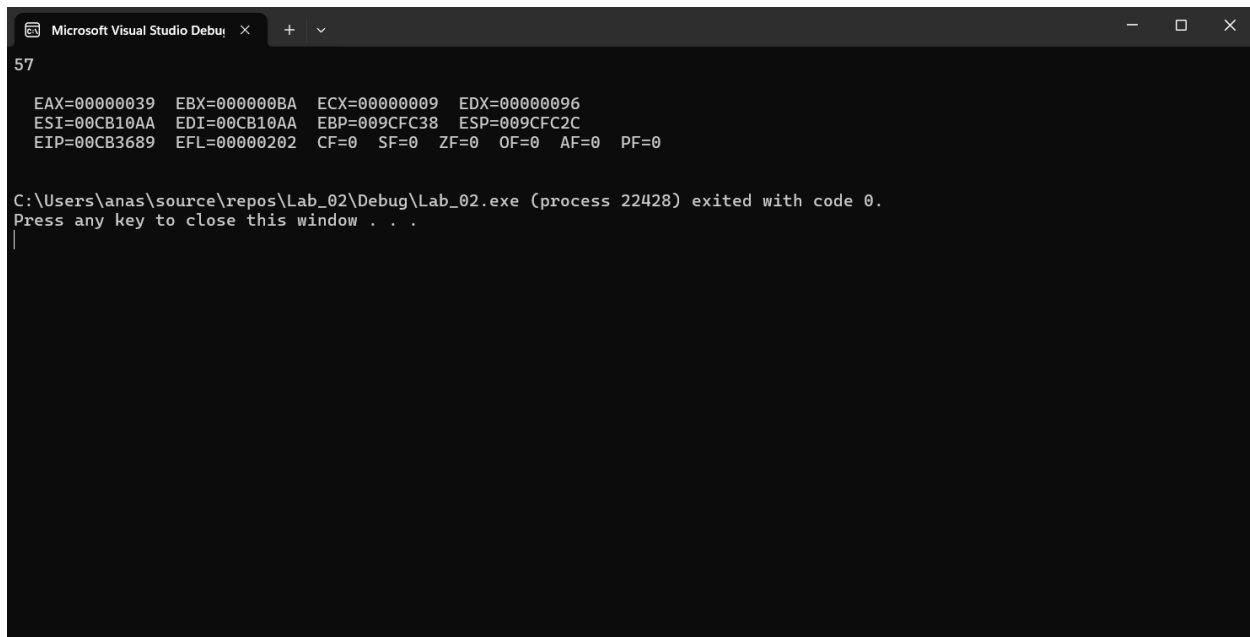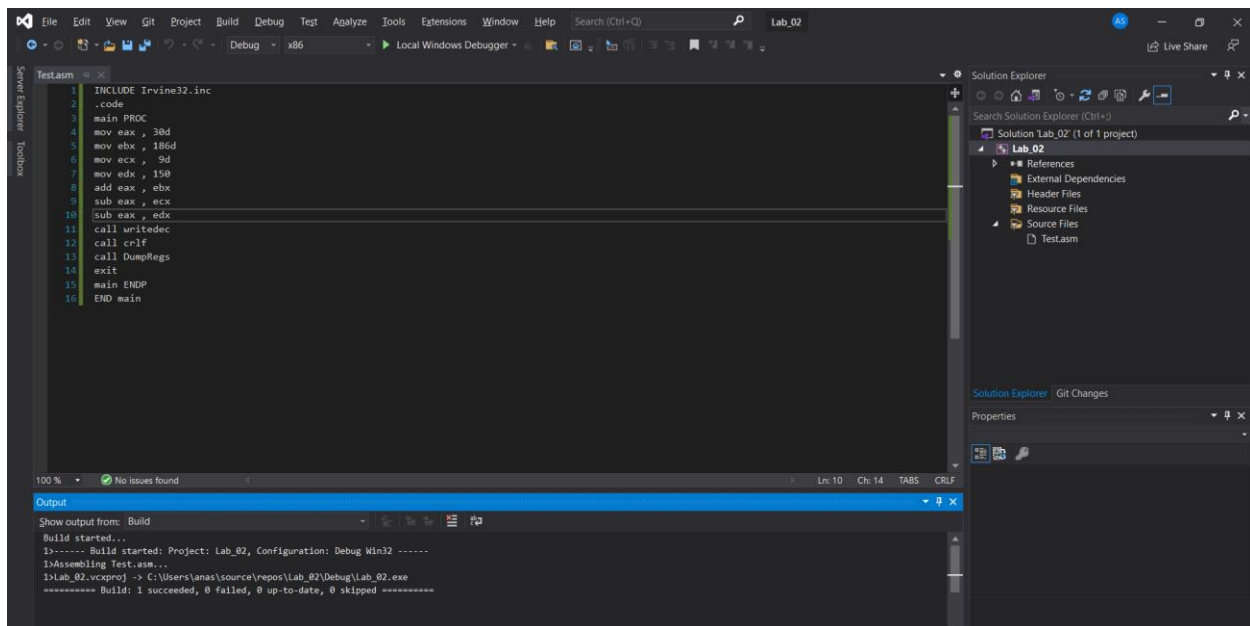
Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 30d
mov ebx , 186d
mov ecx ,  9d
mov edx , 150
add eax , ebx
sub eax , ecx
sub eax , edx
call writedec
call crlf
```

```
call DumpRegs
exit
main ENDP
END main
```

3)101110 + 50Ah + 6710d + 1010001 + F

8142

```
  EAX=00001FCE  EBX=0000050A  ECX=00001A36  EDX=00000051
  ESI=005310AA  EDI=005310AA  EBP=00AFF804  ESP=00AFF7F8
  EIP=0053368C  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


C:\Users\anas\source\repos\Lab_02\Debug\Lab_02.exe (process 24136) exited with code 0.
Press any key to close this window . . .
```
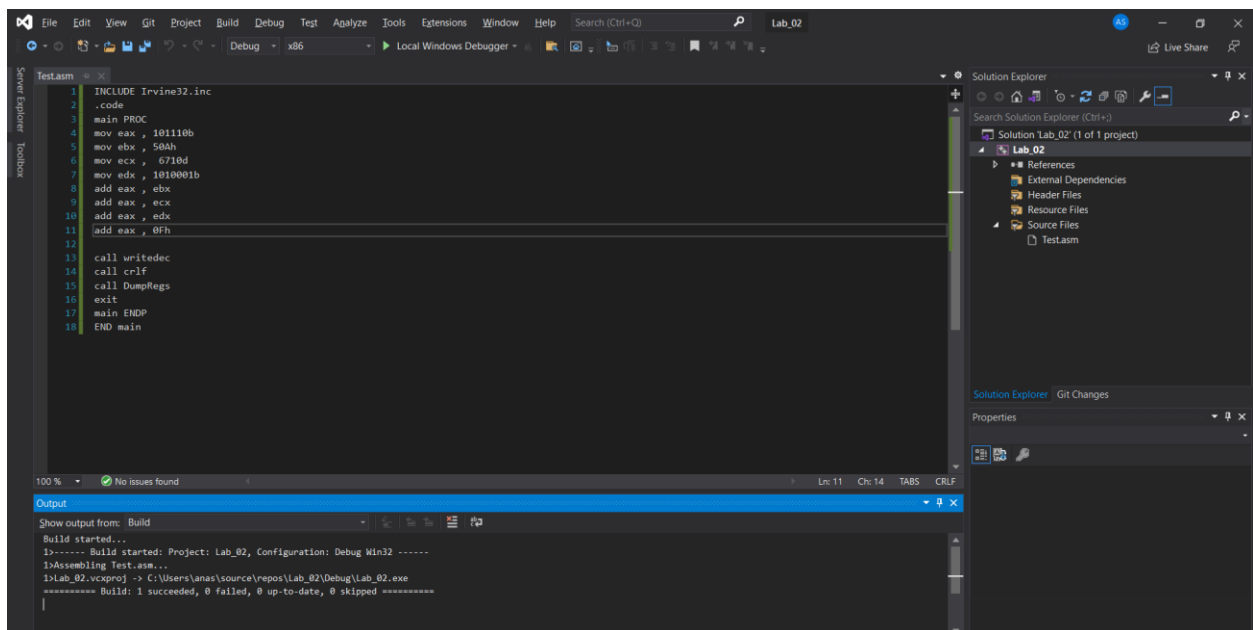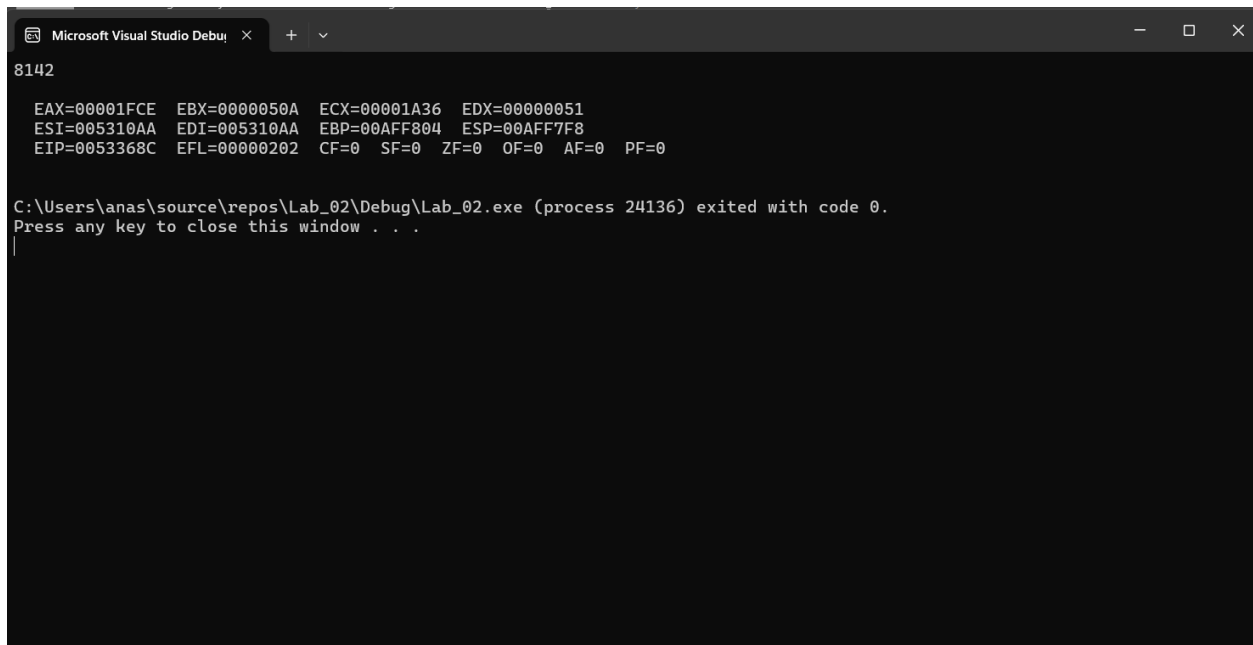
Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 101110b
mov ebx , 50Ah
mov ecx ,  6710d
mov edx , 1010001b
add eax , ebx
add eax , ecx
add eax , edx
add eax , 0Fh

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```
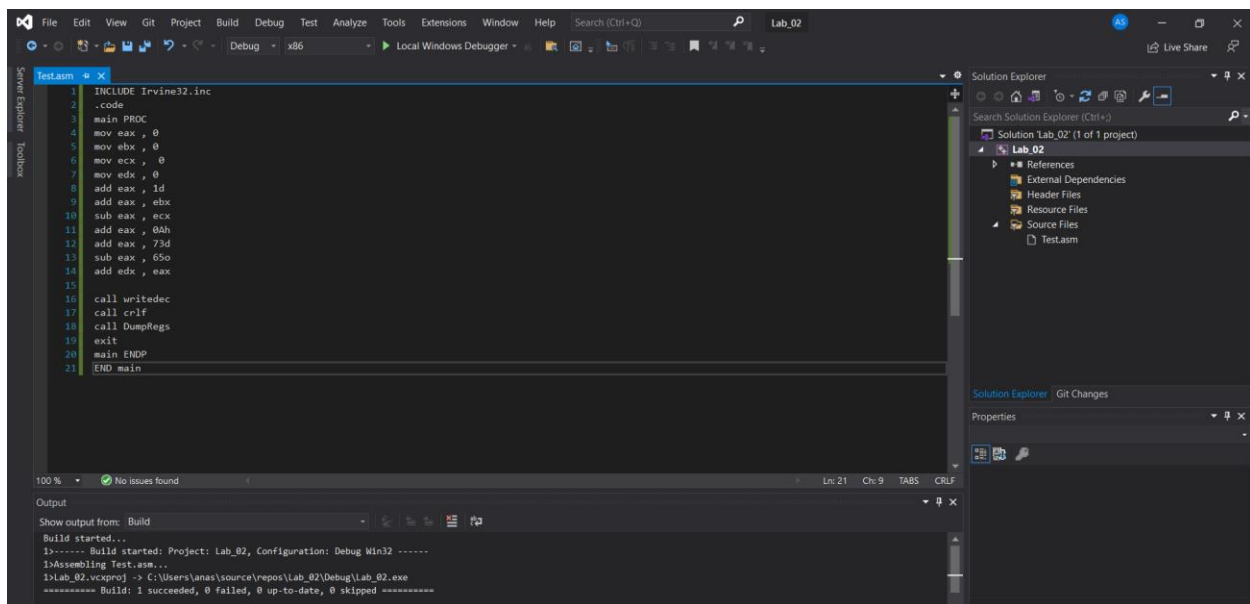
4)10001101 – D83h + 385+10 + 1111101 – E+F
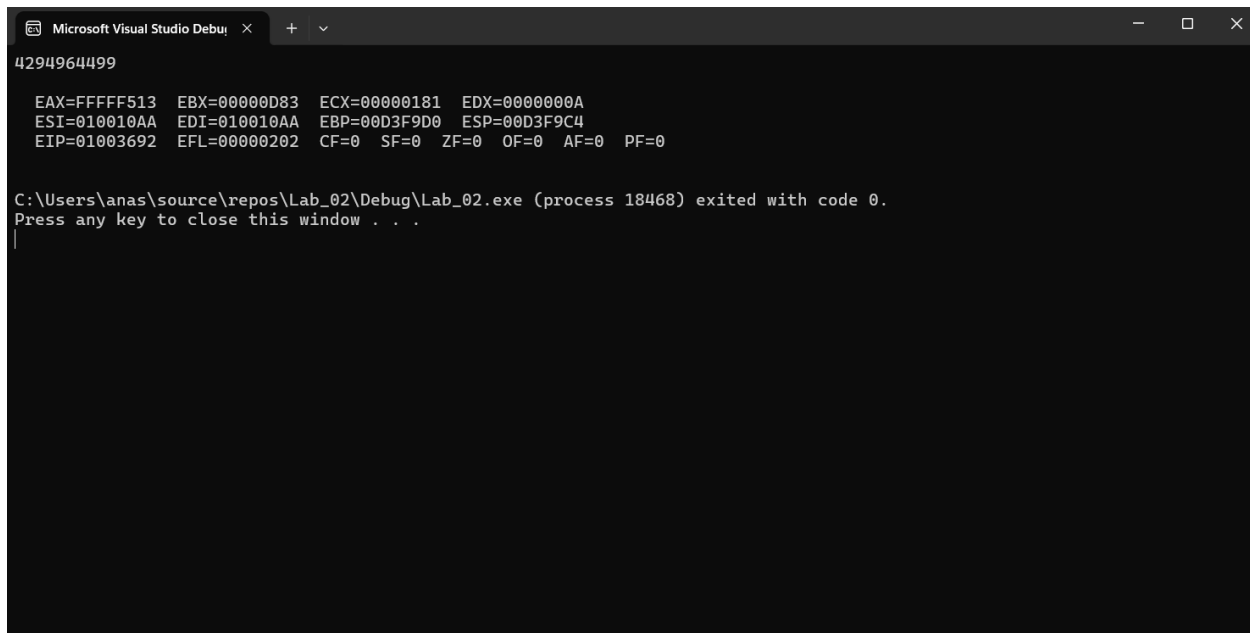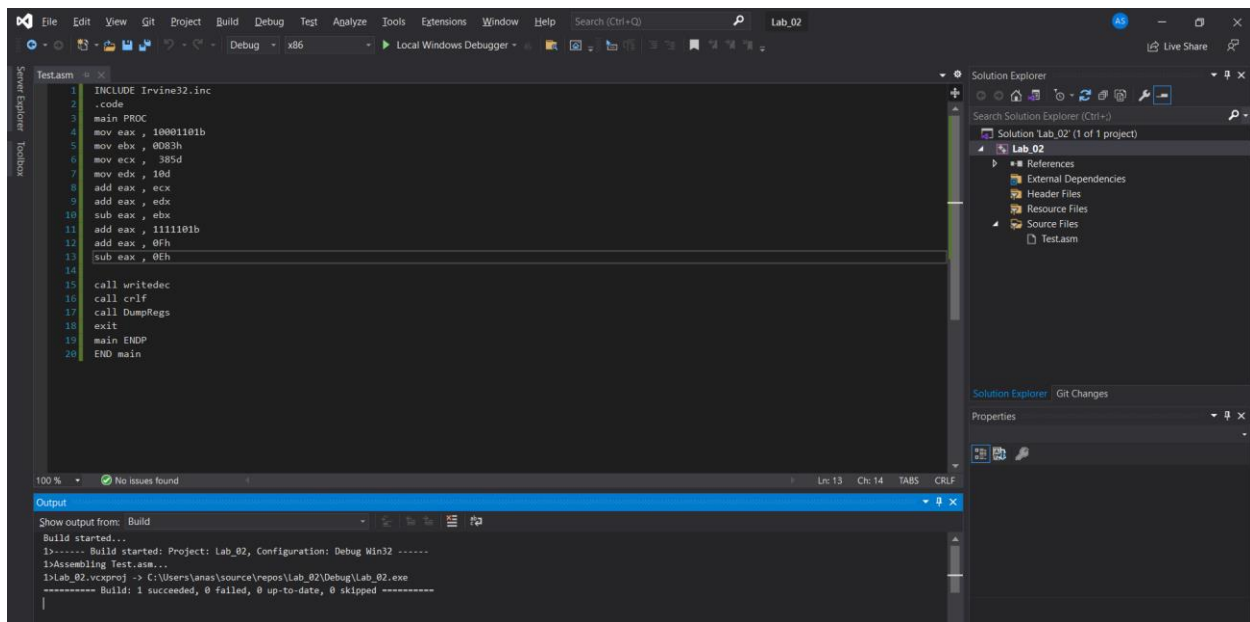
Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 10001101b
mov ebx , 0D83h
mov ecx ,  385d
mov edx , 10d
add eax , ecx
add eax , edx
sub eax , ebx
add eax , 1111101b
add eax , 0Fh
```

```
sub eax , 0Eh

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```

Exercise 2

1)edx = eax + 1 + ebx− ecx + 0Ah-65o+73d

```
31

  EAX=0000001F  EBX=00000000  ECX=00000000  EDX=0000001F
  ESI=005A10AA  EDI=005A10AA  EBP=00BFFE40  ESP=00BFFE34
  EIP=005A3695  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


C:\Users\anas\source\repos\Lab_02\Debug\Lab_02.exe (process 14608) exited with code 0.
Press any key to close this window . . .
```
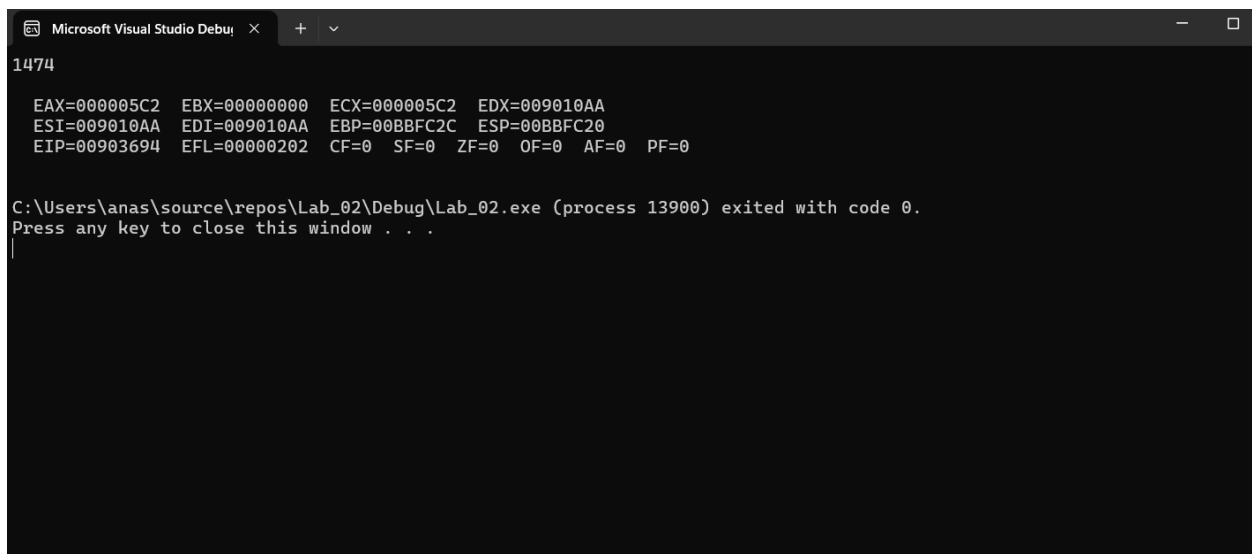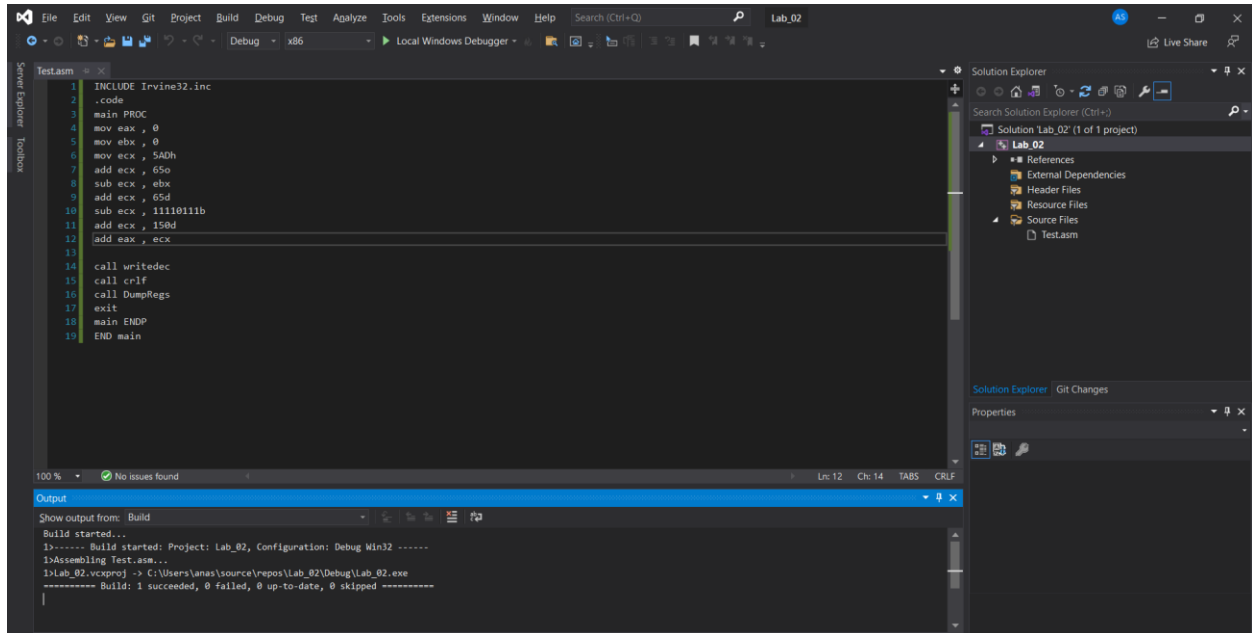
Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 0
mov ebx , 0
mov ecx ,  0
mov edx , 0
add eax , 1d
add eax , ebx
sub eax , ecx
add eax , 0Ah
add eax , 73d
sub eax , 65o
add edx , eax

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```
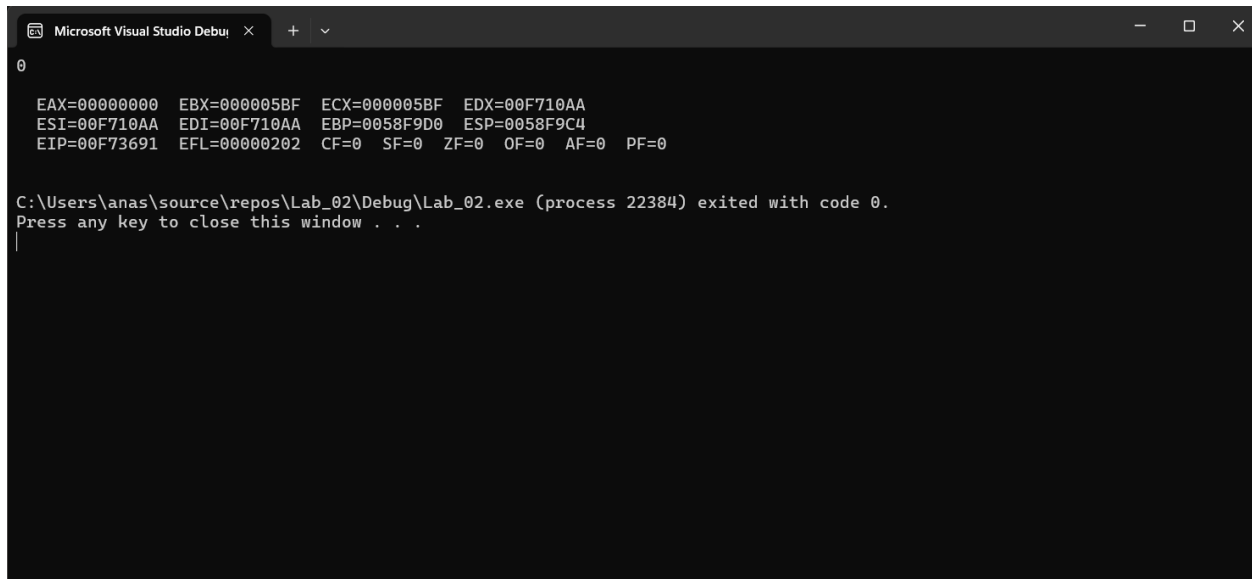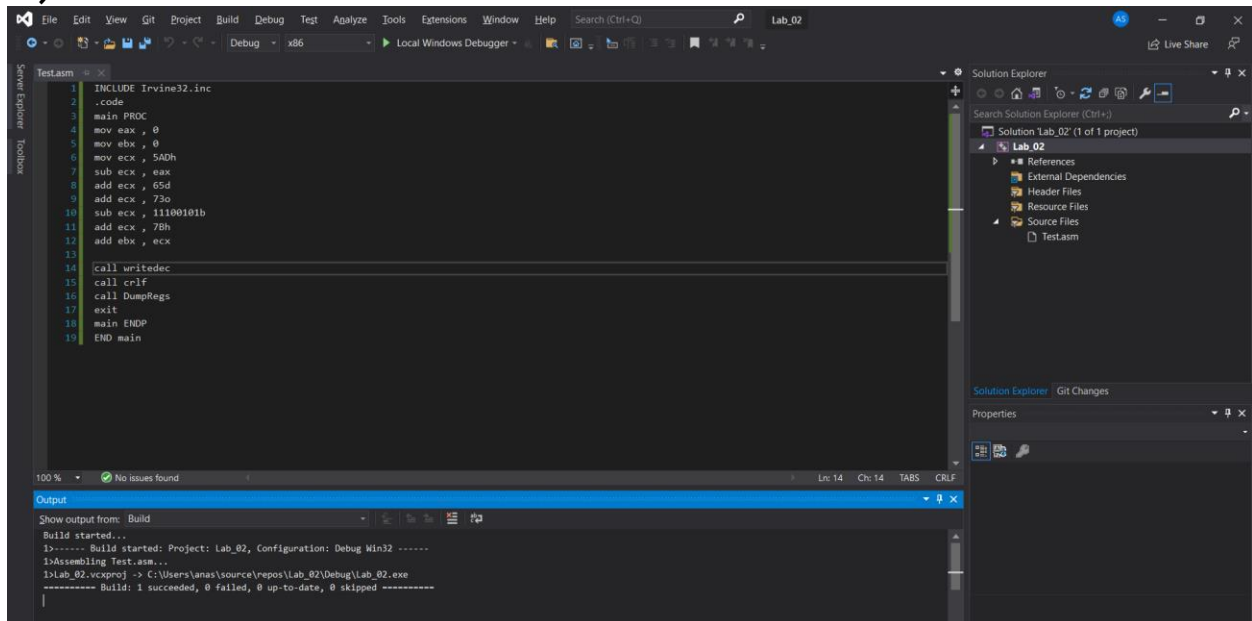
2)eax = 5ADh – ebx + 65o + 65d – 11110111 + 150

Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 0
mov ebx , 0
mov ecx , 5ADh
add ecx , 65o
sub ecx , ebx
add ecx , 65d
sub ecx , 11110111b
add ecx , 150d
```

```
add eax , ecx

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```

3)ebx = 5ADh – eax + 65d + 73o – 11100101 + 7Bh

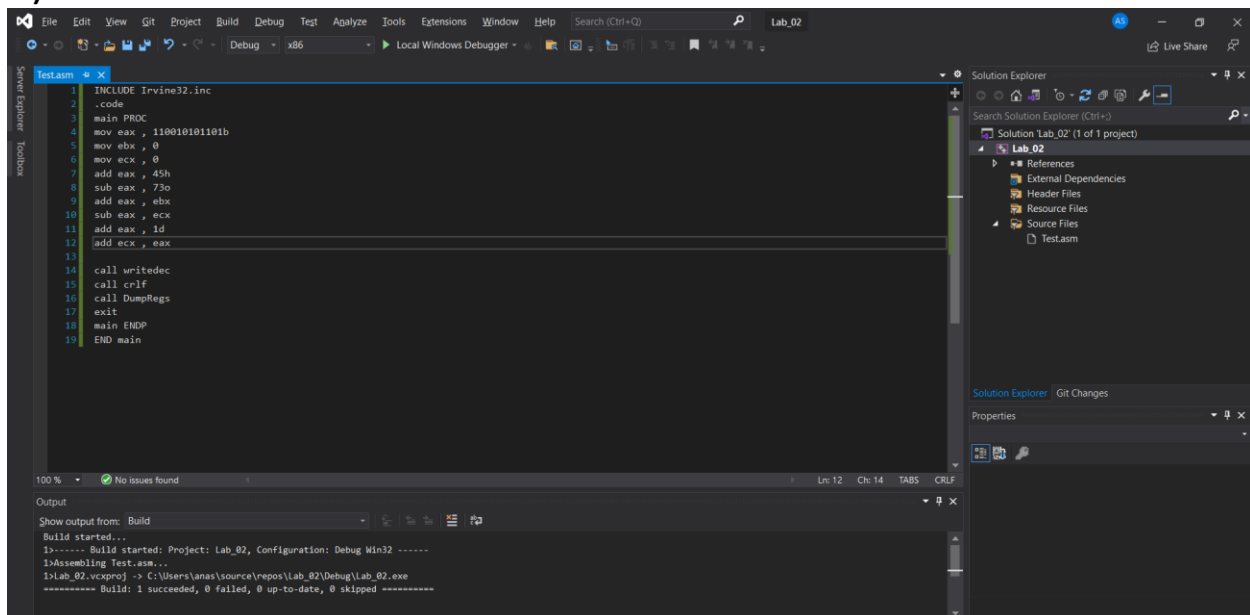
Code:
```
INCLUDE Irvine32.inc
.code
```

```
main PROC
mov eax , 0
mov ebx , 0
mov ecx , 5ADh
sub ecx , eax
add ecx , 65d
add ecx , 73o
sub ecx , 11100101b
add ecx , 7Bh
add ebx , ecx

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```

4)ecx = 110010101101b + 45h-73o + ebx -ecx + 1

Code:

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax , 110010101101b
mov ebx , 0
mov ecx , 0
add eax , 45h
sub eax , 73o
add eax , ebx
sub eax , ecx
add eax , 1d
add ecx , eax

call writedec
call crlf
call DumpRegs
exit
main ENDP
END main
```