

TA: Jade Cheng
ICS 312
Homework Solution #10
Due Date: September 29, 2009

Program Code

```
;; program4 - This program calls a subroutine to evaluate X - Y + Z.

        .model small
        .stack 100

        .data
X        dw          18
Y        dw          20
Z        dw          10
prompt   db          'Calling a subroutine to evaluate 18 - 20 + 10 = $'

        .code
prog     proc
        mov          ax, @data
        mov          ds, ax

        lea         dx, prompt          ; print out prompt.
        mov         ah, 9h
        int         21h

        mov         dx, X                ; use registers to store params.
        mov         bx, Y
        mov         cx, Z
        call        sub1                 ; call subroutine.

        add         dl, '0'              ; convert digit to char, print out.
        mov         ah, 2h
        int         21h

        mov         al, 0                ; return code of 0
        mov         ah, 4ch              ; function code for exit to os
        int         21h
```

```

prog    endp

sub1    proc
        sub        dx, bx            ; dx = X - Y.
        add        dx, cx            ; dx = X - Y + Z.
        ret
sub1    endp
end      prog

```

Program Output

```

C:\WINDOWS\system32\cmd.exe
C:\masm615\Programs\tests\hw#10>dir
Volume in drive C has no label.
Volume Serial Number is 6C86-A0A6

Directory of C:\masm615\Programs\tests\hw#10

09/20/2009  12:46 PM    <DIR>          .
09/20/2009  12:46 PM    <DIR>          ..
09/20/2009  12:43 PM                1,167 hw#10.asm
               1 File(s)                1,167 bytes
               2 Dir(s)  7,010,447,360 bytes free

C:\masm615\Programs\tests\hw#10>ml hw#10.asm
Microsoft (R) Macro Assembler Version 6.14.8444
Copyright (C) Microsoft Corp 1981-1997.  All rights reserved.

Assembling: hw#10.asm

Microsoft (R) Segmented Executable Linker  Version 5.60.339 Dec  5 1994
Copyright (C) Microsoft Corp 1984-1993.  All rights reserved.

Object Modules [.obj]: hw#10.obj
Run File [hw#10.exe]: "hw#10.exe"
List File [nul.map]: NUL
Libraries [.lib]:
Definitions File [nul.def]:

C:\masm615\Programs\tests\hw#10>hw#10.exe
Calling a subroutine to evaluate 18 - 20 + 10 = 8
C:\masm615\Programs\tests\hw#10>_

```