1. Declare the following:
   A. An un-initialized data declaration for a 32-bit unsigned integer

Var1 DWORD ?

   B. An initialized data declaration for a 32-bit unsigned integer with the value "1234h"

Var2 DWORD 1234h

   C. A null terminated string variable containing your name and favorite vegetable

Var1 BYTE "Walter Conway Collard Greens",0

   D. A symbolic constant named "*MinutesInMonth*" using the equal-sign directive and assign it an arithmetic expression that calculates the total number of minutes in a month.

MinutesInMonth = (31*24)*60

2. Show the order of individual bytes in memory ***(lowest to highest)*** for the following double word variable ***(use little endian order):*** var1 DWORD 33129887h

22	33	12	98	87

Little endian order

0000	**87**
0001	**98**
0002	**12**
0003	**33**

3. Show the following using assembler directives:
   A. How to declare a signed double-word array of eight elements and initialize the array with the following values: 43h, 32h, 25h, 12h, 99h, 44h, 77h, 88h

Array SDWORD 43h,32h,25h,12h,99h,44h,77h,88h

   B. Using the array created in part A of this question, show how to calculate the number of elements contained and assign the value to a symbolic constant named "*ArraySize*"

ArraySize = ($ - Array) / 4

4. Why is a string variable declared using the reserved word BYTE as opposed to WORD, DWORD or QWORD?
   Each character uses a byte of storage. The string variable can be thought as an array of characters.
   Ex.
   feeling1 BYTE “Good”
   feeling2 BYTE ‘G’, ‘o’, ‘o’, ‘d’
   feeling1 and feeling2 are the same. Since there is an exception with defining strings we can use feeling1 method.

5. Using the *AddSub* program from the textbook as a reference, write a program that adds three word sized integers using only *16-bit registers*. Please embed program code into your homework submission.

```
TITLE Add three integers

; This program add three word sized integers using only 16-bit registers.

INCLUDE Irvine32.inc
.data
integer1 WORD 1000h
integer2 WORD 2000h
integer3 WORD 3000h

.code
MAIN PROC
mov ax,integer1 ; moves 1000h to the 16bit portion of EAX to result in 1000h
add ax,integer2 ; adds 2000h to the 16bit portion of EAX to result in 3000h
add ax,integer3 ; adds 3000h to the 16bit portion of EAX to result in 6000h

exit
main ENDP

END main
```

6. Write a program that prints *War Eagle* on your screen. You can use the following. Assemble and generate the output using MASM and Visual Studio. Embed your output in your submission.
Sourcecode:

```
TITLE  PRINT WAR EAGLE
COMMENT !
This program prints "WAR EAGLE" on the screen
with a carriage return and line feed.
!

INCLUDE Irvine32.inc
.data
message BYTE "WAR EAGLE",0dh,0ah,0

.code
main PROC
       mov edx, offset message
       Call WriteString
       exit

main ENDP

END main
```

Output:

```
WAR EAGLE
Press any key to continue . . .
```