

# Quiz #3

**Due** Nov 24 at 11:59pm

**Points** 50

**Questions** 9

**Available** Nov 21 at 12am - Nov 24 at 11:59pm 4 days

**Time Limit** 60 Minutes

## Instructions

You have 60 minutes to complete this quiz. Once you begin the quiz you must complete it in one session.

For this quiz, you are allowed to refer to your notes/textbook, as well as use any calculator.

## Attempt History

	Attempt	Time	Score
LATEST	<a href="#">Attempt 1</a>	24 minutes	50 out of 50

Score for this quiz: **50** out of 50

Submitted Nov 23 at 5:52pm

This attempt took 24 minutes.

### Question 1

5 / 5 pts

Suppose that you are given the following MASM data segment declarations:

```
.data
idNumber    BYTE    ?
status      WORD    0
list        DWORD   42 DUP (?)
count       DWORD   ?
```

The address of *idNumber* is **0x4E00**.

What is the hexadecimal address of the 14th element of list?

What is the hexadecimal address of count?

**Answer 1:**

<b>Correct!</b>	0x4E37
Incorrect Answer	4E37h
Incorrect Answer	4E37
Incorrect Answer	x4E37
Incorrect Answer	0h4E37

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**Answer 2:**

<b>Correct!</b>	0x4EAB
Incorrect Answer	4EABh
Incorrect Answer	4EAB
Incorrect Answer	x4EAB
Incorrect Answer	0h4EAB

Question 2	5 / 5 pts
<p>Assume that <b>LO</b> and <b>HI</b> have already been assigned as constants with <b>LO &lt; HI</b>, and <b>x</b> has been declared as <b>DWORD</b> in the data segment. Also, Irvine's library is included, and <b>Randomize</b> has already been called. Which of the following code fragments will assign to <b>x</b> a "random" integer in the range [<b>LO</b> .. <b>HI</b>]? Check all that apply.</p>	
<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <pre> push    LO push    HI call    RandomRange <input type="checkbox"/> pop     x         </pre> </div>	
<div style="border: 1px solid #ccc; padding: 10px;"> <pre> mov     eax, HI call    RandomRange mov     x, eax mov     eax, LO call    RandomRange <input type="checkbox"/> sub     x, eax         </pre> </div>	

Correct!

```
mov     eax, HI
sub     eax, LO
inc     eax
call    RandomRange
add     eax, LO
☒ mov     x, eax
```

Correct!

```
mov     eax, HI
mov     ebx, LO
dec     ebx
sub     eax, ebx
call    RandomRange
add     eax, LO
☒ mov     x, eax
```

**This information is provided so that you can answer questions 3 through 7.**

The following is a partial *main* with a call to a procedure to calculate the factorial of integer argument *x*, and store the result (*x!*) in memory.

- The initial address of the top of the stack is **0x0A50**.
- The value at *x* is 12 (decimal).
- The address of *result* (DWORD) is **0x1200**.
- The address of *nextStep* is **0x2080**.
- The initial value in *ebp* is **0x3B**.

```
main PROC
    push OFFSET result
    push x
    call factorial
nextStep:
    ; ...
    exit
main ENDP
```

```
factorial PROC
    push ebp
    mov ebp, esp
    mov eax, 1
    mov ecx, A ;value of parameter x
again:
    mul ecx
    loop again

    mov edi, B ;address of result

    mov C, eax ;save the factorial in result
    pop ebp

    ret D
factorial ENDP

END main
```

### Question 3

5 / 5 pts

Please select the text that should be placed in the blank space labeled **A** in question 3.

- ☐ [edi]
- ☐ [ebp+12]
- ☐ 0x2080
- ☒ [ebp+8]

Correct!

### Question 4

5 / 5 pts

Please select the text that should be placed in the blank space labeled **B** in question 3.

- ☐ 0x2080
- ☒ [ebp+12]
- ☐ [ebp+8]
- ☐ [edi]

Correct!

### Question 5

5 / 5 pts

Please select the text that should be placed in the blank space labeled **C** in question 3.

☐ [ebp+8]

☐ [ebp+12]

Correct!

☒ [edi]

☐ 0x2080

### Question 6

5 / 5 pts

Please select the number that should be placed in the blank space labeled D in question 3.

☐ 16

☐ 12

Correct!

☒ 8

☐ 4

☐ 2

### Question 7

5 / 5 pts

What hexadecimal number will ESP contain when the "mov eax,1" instruction is executed (this is referring to the code in question 3)?

Correct!

0xA40

Correct Answers

0xA40

0x0A40

A40

0A40

0h0A40

0A40h

A40h

## Question 8

10 / 10 pts

Based on the code given below, please show the ***decimal*** contents of the array after execution has completed.

Array Contents:

0x2200:

8

0x2204:

16

0x2208:

25

0x220C:

35

The address of *array* is 0x2200. Show the (decimal) contents of *array* after execution returns to label *retAdd*:

```
MAXSIZE = 4
.data
array    DWORD MAXSIZE DUP(?)
.code
main     PROC
        push    MAXSIZE
        push    8
        push    OFFSET array
        call    whatzit

retAdd:
        ; ...
        exit
main     ENDP
```

```
whatzit  PROC
        push    ebp
        mov     ebp, esp
        mov     edi, [ebp+8]
        mov     eax, 0
        mov     ebx, [ebp+12]
        mov     ecx, [ebp+16]
        mov     edx, 0

fill:
        add     eax, ebx
        mov     [edi+edx], eax
        inc     ebx
        dec     eax
        add     edx, 4
        loop    fill

        pop     ebp
        ret     12
whatzit  ENDP
```

You may find it helpful to produce a table similar to the following example, filling in the blanks for each iteration of the loop.

eax	ebx	ecx	edx	edi

Answer 1:

Correct!

8

Answer 2:

Correct!

16

Answer 3:

Correct!

25

Answer 4:

Correct!

35

**Question 9****5 / 5 pts**

Which of the following postfix expressions corresponds to the given infix expression?

$$(1 + 4 / 2 + 1 + 2) * 3 / 2$$
**Correct!**☒  $1\ 4\ 2\ /\ +\ 1\ +\ 2\ +\ 3\ *\ 2\ /\$ ☐  $1\ 4\ 2\ +\ /\ 1\ +\ 2\ +\ 3\ *\ 2\ /\$ ☐  $1\ 4\ 2\ /\ +\ 1\ +\ 2\ 3\ +\ *\ 2\ /\$ ☐  $1\ 4\ 2\ /\ +\ 1\ +\ 2\ +\ 3\ /\ 2\ *\$ **Quiz Score: 50** out of 50