

Discovery Series #12: x86-64 Arithmetic and logic instructions (tracing)

Started: Oct 10 at 5:30pm

Quiz Instructions

***Reminder of the academic honor pledge that you signed.

Please note the following instructions:

- 1.) If the question is multiple choice, choose the best answer.
- 2.) For fill in the blank:
 - (a) DO NOT include radix prefix (i.e., **0x**12CA is incorrect) or radix suffix (i.e. 12CA**h** is incorrect).
 - (b) NO space between digits (i.e., 1101 0100 is incorrect).
 - (c) Hex digit in CAPITAL letter (i.e., 12**ca** is incorrect).
 - (d) If positive, DO NOT place the (+) sign (i.e., **+**12 is incorrect).
 - (e) The answer should match the data size of the requested output.
 - (f) True means "Valid syntax"; False means "Invalid syntax".
 - (g) Answer in HEX (except otherwise stated).

Example:

MOV AX, 0xCAFE

What will AX contain after execution?

Answer: CAFE



Question 1 1 pts

1. MOV RAX, 0x7F
2. MOV RBX, 0x02
3. ADD RAX, RBX

What will the value of overflow flag after execution?



Question 2 1 pts

1. MOV RAX, 0x1111_1111_1111_1111
2. MOV RBX, 0xEFFF_FFFF_FFFF_FFFF
3. ADD RAX, RBX

What will RAX contain after execution?



Question 3 1 pts

1. MOV RAX, 0x1111_1111_1111_1111
2. MOV RBX, 0xEFFF_FFFF_FFFF_FFFF
3. SUB RAX, RBX

What will RAX contain after execution?



Question 4 1 pts

1. MOV AX, 0x0003
2. MOV DX, 0x0002
3. MOV CX, 0x7000
4. IMUL CX

What is the content of AX after execution?



Question 5 1 pts

1. MOV AX, 0x0003
2. MOV DX, 0x0002
3. MOV CX, 0x7000
4. IMUL CX

What is the content of DX after execution?



0x0001



Question 6 1 pts

1. MOV RAX, -2
2. MOV RDX, 1
3. MOV RCX, 3
4. IMUL RCX

What is the content of RAX after execution?

0xFFFFFFFFFFFFFFFFFA



Question 7 1 pts

1. MOV RCX, 0x2222_4444_5555_7777
2. IMUL DX, CX, 3

What will overflow flag (OF) contain after execution?



0



1



Question 8 1 pts

1. MOV RSI, 0x7000_0000_0000_1234
2. MOV RBX, 4
3. IMUL RSI, RBX

What will RSI contain after execution?

0x1C00000000004D0



Question 9 1 pts

1. MOV RCX, 0x2222_4444_5555_7777
2. IMUL DX, CX, 3

What will DX contain after execution?

0x676665



Question 10 1 pts

1. MOV RAX, 0x1234_5678_8888_8888
2. XOR RDX, RDX
2. MOV CX, 0x2222
3. IDIV CX

What is the content of AX after execution?

0xA4FC



Question 11 1 pts

1. MOV RAX, -5
2. XOR RDX, RDX
3. MOV CL, 2
4. IDIV CL

What is the content of AX after execution?

0xFE



Question 12 1 pts

1. MOV RAX, 0x1234_5678_ABCD_0009
2. MOV CL, 0x02
3. IDIV CL

What is the content of AX after execution?



0104



Question 13 1 pts

1. MOV RDX, 0xFFFF_FFFF_FFFF_0000
2. BT RDX, 63

What will carry flag (CF) after execution?

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Question 14 1 pts

1. MOV RDX, 0x1234_5678_ABCD_1111

2. XOR RCX, RCX

3. OR RDX, RCX

What will RDX contain after execution?

0x1234_5678_ABCD_1111



Question 15 1 pts

1. MOV RDX, 0xFFFF_FFFF_FFFF_0000

2. BT RDX, 0x3F

What will carry flag (CF) after execution?

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Quiz saved at 5:42pm

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