CS 218 - Worksheet #2

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1. If the **rax** register is set to $8198552921648689 5_{10}$ ($123456789abcdef_{16}$), what are the contents of the following registers in ***hex***? (4 pts, 1 pt each)

    1. **al** = 0xef
    2. **ax** = 0xcdef
    3. **eax** = 0x89abcdef
    4. **rax** = 0x0123456789abcdef

2. Provide the range for each of the following: (6 pts, 1 pts each)

    1. signed byte ~~0-255~~ -128 to +127
    2. unsigned byte 0-255
    3. signed word -32,768 to +32,767
    4. unsigned word 0 to +65,535
    5. signed double-word -2,147,483,648 to +2,147,483,647
    6. unsigned double-word 0 - 4,294,967,295

3. What is the hex, ***byte*** size, two's compliment representation of -7_{10}? (2 pts)

    0xF9

4. What is the hex, ***word*** size, two's compliment representation of -9_{10}? (2 pts)

    0xFFF7

5. What is the hex, ***double-word*** size, two's compliment representation of -9_{10}? (2 pts)

    0xFFFF FFF7

6. What is the decimal representation of $FFFFFFFB_{16}$ (hex, double-word size, two's compliment)? (2 pts)

-5_{10}

7. What is the decimal representation of $C1440000_{16}$? Assume IEEE 32-bit floating point format. (2 pts)

1100 0001 0100 0100 0000 0000 0000 0000

negative

exponent: 1000 0010 = 130 - 127 = 3

1.10001×2^3

↓

-1100.01

-12.25

8. On the Intel 80x86 base architecture, how many ***bytes*** can be stored at each address? (1 pts)

one byte