Lab 4. C and Machine Basics -2

For the following questions, **show all of your work**. **It is not sufficient to provide the answers**.

1. Convert the following numbers from base 7 to base 10:

 a. 1433_7

 b. 261.45_7

2. Convert the following numbers from base 10 to base 7:

 a. 319_{10}

 b. 41.9_{10}

3. Convert the following numbers from base 10 to binary, octal and hexadecimal:

 a. 273_{10}

 b. 118_{10}

4. Convert the following numbers from hexadecimal to decimal and to binary:

 a. $A1E9_{16}$

 b. $2C8B_{16}$

5. In Java, the difference between "pass by value" and "pass by reference" is obvious, especially for primary data types like integer. However, in C, the pointer allows us to apply "pass by reference" even for primary types. Check the following code, rewrite it into "pass by reference" version, and discuss your results with your neighbors.

```
#include <stdio.h>
void swap(int, int);
void main(void){
        int num1=5, num2=10;
        swap(num1, num2);
        printf("num1=%d and num2=%d\n", num1, num2);
}
void swap(int n1, int n2){ /* pass by value */
        int temp;
        temp = n1;
        n1 = n2;
        n2 = temp;
}
```