

# Assignment 1

Due 7/16

## Problem 1 (Paper-based) (3 pts)

Write down the value of a in each steps of following expression.

eg: `int a =0;`                      value of a : 0

`a=a+1;`                                      1

`a=a/2;`                                      0

(1) `int a = 3/2;`

(2) `int a = 4%3;`

`int b =5;`

`a=b;`

(3) `int b = 4;`

`double a=b;//be careful about written style(decimal)`

(4) `double b=2.3;`

`int a =b+2;`

(5) `int a = 5;`

`a+=4;`

`a-=0;`

`a*=2;`

`a/=3;`

`a%=6;`

`a++;`

`a--;`

`a=a+2.0;`

**Problem 2 (Paper-based) (3 pts)**

**(1) Convert following binary (decimal) numbers to decimal (binary) numbers**

$(10011011)_2$  ,  $(1001)_2$ ,  $(12345)_{10}$ ,  $(1000101)_{10}$

**(2) Prove the following logical expressions (Tips: use the formulas mentioned today)**

$$BC + A(\overline{AC}) + B(\overline{C} + 1) + A\overline{C} = B + A\overline{C}$$

$$(\overline{A}BC) + (A\overline{B}C) + (ABC) = A(B + C)$$

$$(A + BC)(\overline{B} + C)(A + \overline{B}) = AC + A\overline{B}$$

**Problem 3 (programming) (4pts)**

**(1) Write a program let user type 3 number, and the output is small to big order divided by comma. Example:**

Input: 3 6 2

output:2,3,6

input: 3 5 3

output: 3,3,5

**(2) Write a program to convert a word to a number (just finish 0,1,2), if the input is wrong, print out: not a number I know.**

eg:

input: zero

output: the number is 0

input: abc

output: not a number I know