

## Quiz 2

PROBLEM SOLVING IN C  
(CSCE 105, SPRING 2006)

URL: <http://www.cse.unl.edu/~cstrobe/csce105s06/>  
8th February, 2006

(20 points)

Name :  
Course No : **CSCE105**

1. (5 points)

In the following table, specify which of the identifiers are (a) C reserved words, (b) standard identifiers, (c) conventionally used as constant macro names, (d) other valid identifiers, and (e) invalid identifiers:

Identifier	(a, b, c, d, or e)
void	a
MAX_LEN	c
part#2	e, Only letters, digits and '_' are acceptable.
my_name	d
return	a
#insert	e, Same as above. Preprocessor command is #include.
time	d
printf	b, in the <stdio.h> library.
Int	d, capitalized 'I', thus different than "int"
sqrt	b, in the <math.h> library.

2. (5 points)

Given the constants and the variable declarations

```
#define PI 3.14
#define MAX_I 1000
...
double x, y;
int a, b, i;
```

indicate which of the following statements are valid, and find the value stored by each valid statement. Also indicate which are invalid and why. Assume that **a** is 3, **b** is 4, and **y** is  $-1.0$ .

Statement	Value <b>OR</b> invalid and why it is invalid
<code>i = a % b;</code>	3
<code>x = a / b;</code>	0. Even though <b>x</b> is a <b>double</b> , dividing an <b>int</b> by an <b>int</b> will return an <b>int</b>
<code>x = PI / y;</code>	-3.14
<code>x = a % (a / b);</code>	invalid. Using <code>%</code> is similar to using <code>/</code> , and you cannot divide by 0.
<code>i = (989 - MAX_I) / a;</code>	-3. The expression is an integer, so no information after the decimal is kept.
<code>x = a * y / b / y;</code>	0.75. Evaluation is left to right. <b>a * y</b> is a <b>double</b> , so all evals are of type <b>double</b>
<code>i = b % a;</code>	1.
<code>i = b / 0;</code>	invalid. Cannot divide by 0.
<code>x = a / y;</code>	-3.0
<code>i = -a / b;</code>	0.

## 3. (10 points)

A retail store would like to install a system that allows shoppers to check the cost of an item after taxes have been added. Below, write a complete program that will prompt the user to enter the cost of the item, scan the cost in, calculate the cost after tax using the equation

$$Price = Cost \times 0.065 ,$$

and output the cost of the item to the user.

```
#include <stdio.h>

int main() {

    double price, cost;

    printf("Please enter the price of the item> ");
    scanf("%lf", &cost);
    price = cost * 1.065;

    printf("The total cost will be $%6.2f.\n", price);

    return 0;
}
```