

CS 2073
Quiz 1
Introduction to C

_____, _____
Last Name **First Name and Initial**

1. Complete the C program below so that it will use the formula $V = \frac{4}{3}\pi r^3$ to calculate the volume V of a sphere of radius r . (Be careful in translating this formula into C.) Then print the value with 5 digits to the right of the decimal point.

```
#include <stdio.h>
int main() {
    double V = 4.2;
    /* put answer below */

}
```

2. What values will be printed by the following program? (Show your work.)

```
#include <stdio.h>
int main() {
    int a, b; /* remember: a and b are integers */
    a = 2 + 3*4;
    printf("a = %d\n", a);
    b = 2*3 + 15%4 + 1/4;
    printf("b = %d\n", b);
}
```

3. Consider the following C program:

```
#include <stdio.h>
int main() {
    int income, tax;
    scanf("%d", &income);
    tax = 500;
    if (income < 8000) tax = 1000;
    else if (income <= 10000) tax = 1500;
    else if (income <= 12000) tax = 2000;
    else tax = 2500;
    printf("Income: %d, tax: %d\n", income, tax);
}
```

- a. What will this program print if we type “11000” for the input?
- b. One part of the program has no effect on the value printed, no matter what the value of **income** is. What is this part?

- c. Fill in values of **tax** for the given ranges at the right:

income	tax
< 8000	
8000 – 10000	
10001 – 12000	
> 12000	