



Sheet 6

Functions Again!

Problem1

What will be the output of the following piece of code:

```
void find(int a, int& b, int& c);
int main(){
    int x=5, y=2, z=1;
    find(x, y, z);
    cout << x << ", " << y << ", " << z << endl;
    return 0;
}
void find(int a, int& b, int& c){
    int temp;
    c = a + b;
    temp = a;
    a = b;
    b = 2 * temp;
}
```

Problem2

Consider the following code:

```
int x=1;          //Line 1
void p(int,int);

int main(){
    int x =3 ; //Line 4
    p(x,x);
    return 0;
}
void p(int y, int z){
    cout<<x+y+z;    // Line 9
}
```

- What is the output of Line 9?
- With Line 4 commented, What is the output of Line 9?
- With Line 1 commented, What is the output of Line 9?
- With statement "int x =4;" add before Line 9, What is the output of Line 9?

Problem3

What is the output of the following program ?

```
void fun() {
    static int b = 0;
    b++;
    cout<<b<<endl;
}
int main(){
    fun();
    fun();
    fun();
    return 0;
}
```

Problem4

Consider the following function prototypes, which are invalid?

```
a)testDefaultParam(int a, int b = 7, char z = '*');
b)void f(int a, int b , int c = 3);
c)void g(int a = 1, int b = 2, int c);
d)void h(int a, int b = 3, int c);
```

Problem5

Consider the following function definition:

```
void fun(int u, int v = 5, double z = 3.2){
    int a;
    u = u + static_cast<int>(2 * v + z);
    a = u + v - z;
    cout << "a = " << a << endl;
}
```

What is the output of the following function calls?

```
a. fun(6);
b. fun(3, 4);
c. fun(3, 0, 2.8);
```

Problem6

Consider the following functions definition in the same program:

```
void fun(int a){
    cout<<"overload 1" << a + 1 << endl;
}
void fun(int a, int b){
    cout<<"overload 2" << a + b << endl;
}
void fun(int a, double b){
    cout<<"overload 3" << a + b << endl;
}
```

What is the output of the following function calls?

- a. fun(3, 4);
- b. fun(6);
- c. fun(3, 2.8);

Problem7

Write a C++ program using function overloading to find the Area of a square or a rectangle.

```
getArea(2.5)    //return 6.25
getArea(4,3)    //return 12
```