

Assume in all questions that the addresses of variables (if they exist) are as follows

<i>a</i>	0x1000
<i>b</i>	0x2000
<i>c</i>	0x3000
<i>d</i>	0x4000
<i>e</i>	0x5000
<i>f</i>	0x6000

**Problem 1.** What gets printed once the following code runs?

```
1 int main() {
2     int a = 5;
3     int b = 8;
4     int &c = a;
5     int *d = &a;
6     int *e = &b;
7     int **f = &d;
8
9     d = e;
10    e = &a;
11    f = &e;
12    **f = 4;
13
14    cout << "value of a: " << a << endl;
15    cout << "value of b: " << b << endl;
16    cout << "value of c: " << c << endl;
17    cout << "value of *d: " << *d << endl;
18    cout << "value of *e: " << *e << endl;
19    cout << "value of *f: " << *f << endl;
20    cout << "value of **f: " << **f << endl;
21 }
```

**Problem 2.** What gets printed once the following code runs?

```
1 void mystery2(int &x, int *y, int *&z) {  
2     x *= 10;  
3     *y += x;  
4     z = &x;  
5 }  
6  
7 int main() {  
8     int a = 3;  
9     int b = 5;  
10    int *c = &b;  
11    mystery2(a, &b, c);  
12  
13    cout << "value of a: " << a << endl;  
14    cout << "value of b: " << b << endl;  
15    cout << "value of c: " << c << endl;  
16    cout << "value of *c: " << *c << endl;  
17 }
```

**Problem 3.** What gets printed once the following code runs?

```
1 int mystery3(int x, int *y) {
2     x += x;
3     *y = x - 2;
4     return x;
5 }
6
7 int main() {
8     int a = 10;
9     int *b = &a;
10    int c = mystery3(a, b);
11
12    cout << "value of a: " << a << endl;
13    cout << "value of b: " << b << endl;
14    cout << "value of *b: " << *b << endl;
15    cout << "value of c: " << c << endl;
16 }
```