CS 170 Study Quiz #2

1. Write a C++ function named **swap** that takes two integers and swaps them. There is no return value. An example call of the function is below.

```
int a = 5, b = 10;
swap(a, b);  // after the call, a is 10 and b is 5
```

2. Given the two declarations below, indicate whether or not the four lines below them are valid. If the declaration is valid, write the letter **V**, if it is not valid, write the letters **NV**. If it is invalid, give a brief explanation of why it is invalid.

```
int i = 10;
double d = 1.0;
```

a) _____ `int &r1;`
b) _____ `int &r2 = i;`
c) _____ `int &r3 = r2;`
d) _____ `int &r4 = d;`
e) _____ `int &r5 = 2;`
f) _____ `int &r6 = &i;`

3. The following code snippet fails to compile. In one sentence, explain why.

```
int value = 5;
int &r1 = value;
for (int i = 0; i < 3; i++)
  std::cout << r1++ << std::endl;
std::cout << "r1 is " << r1;
std::cout << " and i is " << i << std::endl;
```

4. The following require C++ operators to dynamically allocate and free memory. You are NOT using malloc and free.

```
double *pd = new double;
```

a.) Given the code above, write a single statement to free the memory pointed to by **pd**.

b.) Write a single statement to dynamically allocate an array of 10 integers pointed to by **a**.

c.) Write a single statement to free the dynamically allocated memory in part b above.

5. Given the 4 function prototypes below, which function will be called by the code in function **fn**? Write the letter associated with the function. If the code below doesn't compile, write **NC**.

```
void foo(int);       // A
int foo(int);        // B
double foo(int);     // C
double foo(double); // D

double fn(void)
{
  double d = foo(5);
  return d;
}
```