Part I: For Loops

a. What is the output of this function?

```cpp
void m()
{
    int i;
    for(i=0; i<5; i++)
    {
        cout << i << " " << 2*i << endl;
    }
}
```

b1. Modify the function in a. so it prints the list in reverse order.

b2. Modify the function in b. so it takes a parameter to tell it where to start rather than being fixed at 4.

c. What is the output of this function?

```cpp
void n()
{
    int i;
    for(i=0; i<11; i++)
    {
        if (i > 5)
            cout << "A";
        if ((i % 2) == 1)
            cout << "B";
        if ((i % 3) == 1)
            cout << "C";
        cout << i * (i-1) << endl;
    }
}
```

d. Write a function that uses a loop to print:

(note: do not print the ...; print the values)

```
1 1
2 4
3 9
4 16
...
20 400
```

e. Modify the function for the previous function so it takes two arguments, the first number in the range and the last number in the range. Call the function:

```cpp
print_squares(int lo, int hi).
```

To get the output for the previous problem, one would call:

```cpp
print_squares(1, 20);
```

f. Write a function that uses a loop to compute the product:

```
1 * 2 * 3 * 4 * ... * 20
```

Modify the function so it takes parameters to specify the first and last values in the range.

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Part II: While Loops

g. What is the output of this program:

```cpp
// program EB
int main()
{
    int n = 1;
    while( n < 1000 )
    {
        cout << n << " ";
        n = n * 2;
    }
    cout << endl;
}
```

h. Modify program EB problem so it triples the value each time and stops when the value exceeds 3000.

i. Modify program EB again so it starts the value at 2000, divides the value by 2 each time, and stops when the value gets to zero.

j. What is the output of this program for the given input:

```cpp
int main()
{
    int evens = 0, odds = 0;
    int num;
    do
    {
        cin >> num;
        if (num >= 0 && (num % 2) == 0)
            evens++;
        else if (num >= 0 && (num % 2) == 1)
            odds++;
    }
    while(num != -1);
    cout << evens << " " << odds << endl;
}
```

Input: 2 3 4 3 4 2 5 5 7 -1

k. Write a program that asks the user to input words. The program stops when the user has input the word "jumbo" a total of three times.

l. Write a program that reads in 7 temperatures and counts how many of those 7 temperatures are 70 degrees or more and how many are below 70 degrees.

m. Modify your solution to the previous problem so it read in temperatures until the number of days with temperatures at 70 or more reaches 5.

n. Modify your solution to the previous problem so it first asks the user the base temperature instead of using 70 as the base temperature.