Assignment #5

CPSC 121: Computer Science I

Due: Friday October 19th, 2018 [Blackboard Upload Only]

Problem 1

Find the errors:

1.1

```
void total(int value1, value2, value3)
{
    return value1 + value2 + value3;
}
```

1.2

```
int getValue()
{
    cout << "Enter a value: ";
    cin >> value;
}
```

Problem 2

2.1

Write a function named **timesTen**. The function should have an integer parameter named number. When **timesTen** is called, it should display the product of number times ten. (Note : just write the function. Do not write a complete program.)

2.2

Write a function prototype for the **timesTen** function you wrote in Question 2.1.

2.3

What is the output of the following program:

```cpp
#include <iostream>
using namespace std;
void showDouble(int);      // Function prototype
int main()
{
    int num;
    for (num = 0; num < 10; num++)
        showDouble(num);
    return 0;
}

// Definition of function showDouble.
void showDouble(int value)
{
    cout << value << "\t " << (value * 2) << endl;
}
```

Problem 3

A program contains the following function.

```cpp
int cube(int num)
{
    return num * num * num;
}
```

Write a statement that passes the value 4 to this function and assigns its return value to the variable result.

Problem 4

The following statement calls a function named half. The half function returns a value that is half that of the argument. Write the function.

$$result = half(number);$$

Problem 5

When an object is falling because of gravity, the following formula can be used to determine the distance the object falls in a specific time period:

$$d = \tfrac{1}{2}gt^2$$

The variables in the formula are as follows: d is the distance in meters, g is 9.8, and t is the amount of time, in seconds, that the object has been falling.

Write a function named **fallingDistance** that accepts an objects falling time (in seconds) as an argument. The function should return the distance, in meters, that the object has fallen during that time interval. Write a program that demonstrates the function by calling it in a loop.
The output should look like:
Enter the time (in seconds) that the object has been falling: **10**
Table of the distances an object falls due to gravity in specific time periods.

Time	Distance
(in seconds)	(in meters)
1	5
2	20
3	44
4	78
5	123
6	176
7	240
8	314
9	397
10	490

Problem 6

Suppose you have a certain amount of money in a savings account that earns compound monthly interest, and you want to calculate the amount that you will have after a specific number of months. The formula, which is known as the future value formula, is:

$$F = P * (1 + i)^t$$

The terms in the formula are as follows:

- F is the future value of the account after the specified time period.

- P is the present value of the account.

- i is the monthly interest rate .

- t is the number of months .

Write a program that prompts the user to enter the accounts present value, monthly interest rate, and the number of months that the money will be left in the account. The program should pass these values to a function named futureValue that returns the future value of the account, after the specified number of months. The program should display the accounts future value.