**Name:**

**Advanced Programming in C++**

**Lab Exercise 2/6/2025**

In this exercise, you will write several programs that will demonstrate the use of functions in the C++ programming language. All functions should include a prototype. When you have completed your programs, you are to submit your documented source code as well as a sample output.

1. The following formula can be used to determine the distance an object falls due to gravity in a specific time period:



The variables in the formula are as follows: d is the distance in meters, g is the acceleration due to gravity 9.8 m/s2, and t is the time in seconds that the object has been falling.

Write a function *fallingDistance* that accepts the objects fall time (in seconds) as an argument. The function should return a 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 that passes the values 1 to 10 as arguments, and displays the return value.

1. Write a program that determines which of the companies (Northeast, Southeast, Northwest, and Southwest) had the greatest sales in a quarter. It should include the following two functions, which are called by main.
   * double getSales( ) is passed the name of a division. It asks the user for a division’s quarterly sales figure and then returns it. It should be called once for each division.
   * void findHighest( ) is passed the four sales totals. It determines which is the largest and prints the name of the highest grossing division along with it’s sales figure.