**Name:**

**Advanced Programming in C++**

**Lab Exercise 4/1/2021**

**Problem Solving**

In this activity, you will use your programming prowess to solve a variety of problems. You may use any programming language to solve these problems (Python, C#.NET, Java, or C++). When you complete these programs, you are to submit documented source code as well as a sample output for each program.

1. A person thinks of a number. If I add one half of the number to one quarter the number the sum is 39. Write a program that will find the number for any user supplied sum.
2. Write a program that will solve this problem

26424 where the underscore ( \_ ) is a single digit. What is the digit?

1. Write a program that given the time of the day (hours, minutes) return the angle between the hands on a clock. For simplicity, you may assume that the position of the hours hand are the integers 1 to 12 and the minute hand are the integers 0 to 59.
2. Given the following grid:

|  |  |  |
| --- | --- | --- |
| 43 | 38 | 28 |
| 35 | 57 | 15 |
| 31 | 14 | 64 |

The numbers in each row and each column should add up to 109. One of the numbers is not correct. Which one is it and what should it be?

1. Complete these multiplications using only prime numbers.

\_\_ \* \_\_ = 91

\_\_ \* \_\_ \* \_\_ = 66

Using only prime numbers