This project has 4 parts, each worth 10-15 points. You will complete a Logic puzzle, Sudoku puzzle, and two problems from the writings of Lewis Carroll (the author of Alice in Wonderland). Submit all work and solutions in a packet with one problem per page.

1. **Logic Puzzle**

Read the Extension Packet on How to Solve Logic Problems and Sudoku (from *Mathematical Ideas,* 12 Ed., by Miller, Heeren, & Hornsby). Complete any 2 of the 4 logic problems in the extension exercises (1-4). Use color to code your moves in sequential order. Make your first 20 moves (marks) one color, and your next 20 another color, and so on. Give me a color key so I know the order of your colors. (10 pts)

1. **Sudoku Puzzle**

After reading the Extension Packet on How to Solve Logic Problems and Sudoku, complete any 2 of the 6 Sudoku puzzles in the extension exercises (5, 6, 7, 8, 9, 10). Again, use color to code your moves in sequential order. This time, make your first 10 moves (marks) one color, and your next 10 another color, and so on. Give me a color key so I know the order of your colors. (10 points)

1. **Arguments of Lewis Carroll**

Consider the following verse, which has been around for many years.

*For want of a nail, the shoe was lost. For want fo a shoe, the horse was lost. For want of a horse, the rider was lost. For want of a rider, the battle was lost. For want of a battle, the war was lost.*

*Therefore, for want of a nail, the war was lost.*

Each line of the verse could be written as a conditional statement. For example, the first line may be restated as “if a nail is lost, then the shoe is lost.” Translate the verse (the premises and conclusion) into the symbolic form of an argument. Then, determine whether the argument is valid or invalid and provide evidence and a complete sentence to support your conclusion. (15 points)

1. **Alice in the Forest of Forgetfulness**

When Alice entered the Forest of Forgetfulness, she often forgot what day of the week it was. She encountered a Lion and a Unicorn, two strange creatures. The Lion lies on Mondays, Tuesdays and Wednesdays and tells the truth on the other days of the week. The Unicorn, on the other hand, lies on Thursdays, Fridays, and Saturdays, but tells the truth on the other days of the week.

One day Alice met the Lon and the Unicorn resting under a tree. They made the following statements.

*Lion:* Yesterday was one of my lying days.

*Unicorn:* Yesterday was one of my lying days, too.

From these two statements, Alice was able to deduce the day of the week. What day was it? Provide evidence and a complete sentence to support your conclusion. (15 points)