Number Conversion Documentation

### Full Name - Student ID

Along with the Vector and Matrix classes, your math library will contain a class that encapsulates an RGBA (red, green, blue, alpha) colour, stored as a 4-byte integer where each colour component is stored in a single byte.

Text

Description automatically generatedThe Colour class defines the following variables and functions:

# Questions

1. How many unique colour values can the *colour* variable contain?  
   Enter your answer here.
2. What is the minimum value, maximum value, and range for each colour component?  
   Enter your answer here.
3. Suppose the *red* component of the RGBA colour is to be stored in an 8-bit integer (char) variable and is set to the decimal: *char red = 94*. Write this value as a binary number:  
   Enter your answer here.
4. The byte containing the red value (94) from question 3 is not to be stored in the RGBA colour value (in the left-most byte). Assuming all other colour bytes are initialized to 0, write the value of the 4-byte colour variable in binary:  
   Enter your answer here.
5. What is the decimal value of the binary number from question 4?  
   Enter your answer here.
6. Write the bit shifting operation (in C#) that mill move all bits from the ‘R’ position in the colour variable to the ‘G’ position.  
   Enter your answer here.
7. Our colour value now has the colour component set, and no red, blue, or alpha colour component values. What are the decimal and binary value of the *colour* variable now?  
   Enter your answer here.
8. After you have created your Colour class and implemented all the functions listed in the class definition above, add at least 1 new unit test to the unit test program using your answers in the exercise to verify your code.