M319: AP Computer Science Principles Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 4: Bits, Bytes, and Binary

Calculator Task Date: \_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**File To Create:** *Chapter 4 \ In-Class Activities \ calculator.html*

**Required Tasks (in this order):**

1. Write six functions in the same style as add(num1, num2). Include appropriate comments (documentation) for each function:
   * subtract(num1, num2)
   * multiply(num1, num2)
   * divide(num1, num2)
   * exponentiate(num1, num2)
   * integerDivision(num1, num2)
   * remainder(num1, num2)
2. Add a line of code to concatenateAndDisplay() to display the value of the output string in the innerHTML of the <div> tags.
3. Finish writing the calculate() function:
   * Declare three local variables:
     + first
       - Initialize it to the value of the textbox with an ID of 'idNum1'
     + operation
       - Initialize it to the value of the select box with an ID of 'idSelectBox'
     + second
       - Initialize it to the value of the textbox with an ID of 'idNum2'
   * Finish writing the decision (if, else-if) statement inside of the function. The website should behave like a working calculator for addition, subtraction, multiplication, division, exponentiation, integer division, and remainder (mod)
   * Check for improper values! Alert a message if appropriate values are not entered.
4. Add appropriate event handlers to the buttons.
5. Implement the code for the “Clear” button.
   * Set the value of output to an empty string, ""
   * Display the new value of output in the innerHTML of the <div> tags.

**Enhancements (check with your teacher about which are required and which are optional):**

1. Look between the <style> tags near the top of the document. Change the following to your personal tastes:
   * Change the color and thickness of the border around the page
   * Change the background-color by adjusting the rgb-value specified
2. Change the image displayed on the webpage by modifying the tag <img src="calculator.jpg">
   * The new image you select should have a different file name than calculator.jpg
   * The new image should be small (less than 400 pixels in both width and height)
3. Research how the // and % operations work. Include comments describing how these operations work.
4. Change the image displayed on the webpage each time a new operation is selected from the dropdown menu and the “Calculate” button is pressed.