Problem 1: BMI

1. Problem Spec
   1. Inputs
      1. User Weight
      2. User Height
   2. Outputs
      1. User BMI
      2. BMI Chart
   3. Assumptions
      1. The user’s information is correct
      2. The formula is correct
   4. Constraints
      1. Weight must be in pounds
      2. Height must be in inches
   5. Equations
      1. BMI = (Weight(Lbs) \* 703) / Height(inches)^2
2. Solution
   1. Test Plan
      1. Try typical inputs and look for expected outputs
      2. Try negative numbers and find output
      3. Try 0 and find output
   2. Pseudocode
      1. Ask user for height and weight
      2. Send the inputs to the equation and calculate user’s BMI
      3. Output the user’s BMI
      4. Output the standard BMI chart

Problem 2: CalcCircumference

1. Problem Spec
   1. Inputs
      1. Radius
   2. Outputs
      1. Diameter
      2. Circumference
      3. Area
   3. Assumptions
      1. The user will enter a non-negative, correct number
   4. Constraints
      1. Calculate values within the print statement
   5. Equations
      1. Diameter:
      2. Circumference:
      3. Area:
2. Solution
   1. Test Plan
      1. Check negative numbers and 0 to determine odd inputs
      2. Check output for floating point errors
      3. Check normal inputs and compare results
   2. Pseudocode
      1. Ask user for radius
      2. Print Diamater + 2 \* input
      3. Print circumference + 2 \* pi \* input
      4. Print radius + pi \* input \* input

Problem 3: Space Digits

1. Problem Spec
   1. Inputs
      1. 5-digit number
   2. Outputs
      1. The original input
      2. The input with spaces between each character
   3. Assumptions
      1. The user will input an integer
   4. Constraints
      1. Integer must be 5 characters
   5. Equations
      1. Check if an integer is odd using x % 2 == 0
2. Solution
   1. Test Plan
      1. Ensure that numbers with less or more than 5 digits don’t pass
      2. Enter 0 and negative numbers
      3. Enter characters or strings
   2. Pseudocode
      1. Create a loop that checks that the input is 5 digits
      2. If the input is 5 digits accept the input and continue, otherwise, repeat
      3. Check if the input is odd or even (input % 2 == 0)
      4. Convert the input to a string
      5. Loop through the character array inserting a space between the characters
      6. Output the final character outside of the loop to avoid an additional space
      7. Print the entire character set