Name:_____

College of Engineering and Computer Science
Mechanical Engineering Department

California State University Northridge

Mechanical Engineering 209
Programming for Mechanical Engineers

Spring 2017 Number: 15832 Instructor: Larry Caretto

Solution to Fourth Quiz, April 20, 2017

1. What values are shown on the spreadsheet after running the sub shown below.

```
Sub quiz4()
   Dim i As Integer
   Dim j As Integer
   Dim k As Integer
   k = 7
   For i = 1 To 9 Step 3
      For j = k To k + 3 Step 2
         Cells(i, j - 2) = i + j + k
      Next j
      k = k - 2
   Next i
End Sub
```

	A	B	C	D	E	F	G
1					15		17
2							
3							
4			14		16		
5							
6							
7	13		15				
8							

The for loop for i will step through three values of i: i = 1, 4, and 7

For i = 1, k = 7 and the for-loop index j will have values of 7 and 9; this will execute the following statements in the inner For loop: for j = 7, Cells(1,7-2) = 1 + 7 + 7 = 15 and, for j = 9, Cells(1,9-2) = 1 + 9 + 7 = 17; these statements will place 15 in cell E1 and 17 in cell G1

Because of the k = k – 2 statement just before the end of the i loop, the next value of k will be 7 – 2 = 5; the next value of i will be 4 (the previous value of 1 plus the step of 3.) For k = 5, the for-loop index j will have values of 5 and 7; this will execute the following statements in the inner For loop: for j = 5, Cells(4,5-2) = 4 + 5 + 5 = 14 and, for j = 7, Cells(4,7-2) = 4 + 7 + 5 = 16; these statements will place 14 in cell C4 and 16 in cell E4

Because of the k = k – 2 statement just before the end of the i loop, the next value of k will be 5 – 2 = 3; the next value of i will be 7 (the previous value of 4 plus the step of 3.) For k = 3, the for-loop index j will have values of 3 and 5; this will execute the following statements in the inner For loop: for j = 3, Cells(7,3-2) = 7 + 3 + 3 = 14 and, for j = 7, Cells(7,5-2) = 7 + 5 + 3 = 15; these statements will place 14 in cell C4 and 16 in cell C7

The k = k – 2 statement sets k = 3 – 2 = 1, but the next value of i in the for loop would be 10 which is larger than the upper limit of 9 so the outer i loop terminates and the sub ends. The output to the worksheet is shown above.

2. Write a function called sumPrimes which has two inputs, an initial number and a final number, both of type long. Your function should return the sum of all prime numbers from the initial to the final numbers input to the function. Your solution should assume that you can call an existing function, Function isPrime(N as Long) as Boolean, that returns True if the input number N is prime and false otherwise. (A prime number is a number that is evenly divisible only by 1 and itself.)

```
Function sumPrimes(Start As Long, Finish As Long) As Long

    Dim N As Long
    sumPrimes = 0
    For N = Start To Finish
        If isPrime(N) Then sumPrimes = sumPrimes + N
    Next N
End Function
```