Lab 10

Instructions: Complete the steps below. Be sure to show your code to one of the lab TAs before you leave, so that you can receive credit for this lab. You must also upload a copy of all your source code (.java) files to the link on Blackboard by **11:59 PM on Monday October 5, 2020 for L01, L02, L03, L05 and by 11:59 PM on Thursday October 1, 2020 for L06, L07, L08 and L09**.

1. Write a program to compute the following summation:

$$\frac{1}{3} + \frac{3}{5} + \frac{5}{7} + \frac{7}{9} + \frac{9}{11} + \frac{11}{13} + \cdots + \frac{95}{97} + \frac{97}{99}$$

2. A positive integer is called a *perfect number* if it is equal to the sum of all of its positive divisors, excluding itself. For example, 6 is the first perfect number because $6 = 3 + 2 + 1$. The next is $28 = 14 \frac{1}{2} + \frac{2}{3} + \cdots + \frac{i}{i+1} + 7 + 4 + 2 + 1$. There are four perfect numbers $< 10,000$. Write a program to find all these four numbers.

   Grading Guidelines: This lab is graded on a scale of 0-6 points, assigned as follows:
   - **0 points:** Student is absent or does not appear to have completed any work for the lab
   - **2 point (2*1):** Student has written the program, but it has errors.
   - **4 points (2*2):** Student has written the program it compiles without error, but it does not produce the correct output.
   - **6 points (2*3):** Student has written the program and it compiles and runs correctly, without any errors.