CSF
Hwk04
For ever…

1. Write method sumTo() that takes an integer and returns an integer. It should return the sum of all the integers between 1 and the number given.
Ex: sumTo(1) ==> 1, sumTo(4) ==> 10, sumTo(10) ==> 55, sumTo(0) ==> 0

2. Write a method sumOfSums() that takes an integer and returns an integer. It should return the sum of all the "sumTo's" of the integers between 1 and the number given. Use your sumTo() method to help.
Ex: sumofSums(1) ==> 1, sumTo(4) ==> 20, sumTo(7) ==> 84, sumTo(10) ==> 220,
sumTo(0) ==> 0

3. Write a method sumOfEvenBetween() that takes two integers and returns an integer. It should return the sum of all the integers between the first number and the second number that are even.
Note: Either number can be the largest.
Ex: sumOfEvenBetween(2,5) ==> 6, sumOfEvenBetween(5,2) ==> 6
sumOfEvenBetween(1,10) ==> 30, sumOfEvenBetween(5,5) ==> 0

4. Write a method sumPropDivisors() that takes an integer (x) and returns an integer. It should return the sum of all the positive integers less than x that divide evenly into x.
Ex: sumPropDivisors(0) ==> 0, sumPropDivisors(1) ==> 0, sumPropDivisors(6) ==> 6,
sumPropDivisors(10) ==> 8, sumPropDivisorsv(13) ==> 1

5. Write a method isPerfect() that takes an integer (greater than 0) and returns a boolean. It should return true if the number equals the sum of its proper divisors. Such a number is called a "perfect number". Use sumPropDivisors() as a helper method.
Ex: isPerfect(1) ==>false, isPerfect(4) ==> false, isPerfect(6) ==> true
isPerfect(10) ==> false, isPerfect(28) ==> true, isPerfect(496) ==> true

6. Write a java method called isPrime() that takes an integer and returns a boolean. It should return true if the number is prime, and false otherwise. Note that one way to determine if a number is prime is to see if the sum of its proper divisors is 1. Use sumPropDivisors() as a helper method. Remember, 1 is not a prime and therefore it is again an exception.
Ex: isPrime(1) ==>false, isPrime(2) ==> true, isPrime(5) ==> true, isPrime(9) ==> false
isPrime(93) ==> false, isPrime(101) ==> true

7. EC) Write a method that given integer *n*, will find the *n*th perfect number. Use it to find the 4th perfect number. The first 3 are 6, 28, and 496. Email me your code and the answer.

8. EC) Write a method that determines if two numbers are amicable. Two numbers x and y are amicable if they are not the same number and the sum of the proper divisors of x equals y and vice versa. Use your method to determine the first two amicable numbers. Email me your code.