

1. Revel Chapter 5 Exercise 2
2. Use a while loop to write a program that calculates an average. The user will enter -1 to stop.
3. (Mathematics) In number theory, a perfect number is defined as some positive integer whose value is the sum of its positive divisors.
  - a. i.e  $6 = 1 * 2 * 3$  (You can always assume 1 is a divisor for this case). Since  $1 + 2 + 3 = 6$  then we say 6 is a perfect number
  - b. Write a Java program to display the first 4 perfect numbers. For help look at the primenumber.java file from your lab. Similar concepts are being used.
  - c. Hint: The biggest thing that can divide some number  $n$  is  $\frac{n}{2}$  (we are using INTEGER DIVISION here). We need to check that number.
  - d. Hint 2: If you keep a running sum of the divisors what happens when the loop finishes?
  - e. The first four perfect numbers are: 6,28,496,8128. If you're curious google the 5<sup>th</sup>. It is big
  - f. I want you to properly declare constants.