Looping Problems

Write and test the functions to solve the problems below. Then copy each function into a text-editor one-by-one and then copy the whole set of those functions into the Comments-to-Teacher in the homework server. Include the answers to the calculation questions as well. There's no file to upload.

#1: Create the function `float CoolEuler(int n)` that calculates:

$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \cdots + \frac{1}{n^2}$$

Calculate and show (put into Comments-to-Teacher) the difference between `CoolEuler(100)` and $\frac{\pi^2}{6}$.
Note that `PI` is a built-in constant in Processing.

#2: Create the function `int Harmony(float sum)` that calculates how many numbers in the series below are needed to add up to at least `sum`. Note that Harmony(2.0) == 4 because we need at least the 4 terms: 1 + ½ + 1/3 + ¼ to add up to 2 or more. Remember that 1/5 == 0 (because of integer division), but 1.0/5 == 0.2 as well as 1/float(5) == 0.2

$$\frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots$$

Calculate and show Harmony(20.) If this takes your computer more than 15 or 20 seconds to compute, you're doing something wrong.

#3: Note that every composite integer between 2 and 100 is divisible by at least one of the following numbers: 2, 3, 5 and 7. Write the function `void AllOfThem()` that calculates and prints out all the prime numbers between 2 and 100. Include the list of them in the Comments-to-Teacher.