

# Homework 1 Completion

## **SUGGESTED, NOT DUE, DO NOT TURN IN**

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### **1 Kooky Kalculationations**

Build up to a tricky calculation by combining different bits of R code.

1. The “modulus” operator is `%%`. The code `x %% y` outputs the remainder after dividing `x` by `y`. For example, `18 %% 5` outputs 3. For what positive integers `x` is `x %% y` equal to 0 *only* if `y == x` or `y == 1`? Find some examples. Do these numbers have a name?
2. You can do operations like `+`, `-`, `*`, `/` with lists. See what happens when you run `(1:100) + 5`. Then run `(1:100) %% 2`. What does this code have the computer figure out about the numbers from 1 to 100?
3. Write code to output a vector of “logicals” (`TRUE`s and `FALSE`s) where the  $n$ th logical is `TRUE` if  $n$  is *even* (hint: your solution will probably use `!`).
4. Read about the `which` function. Write a line of code that finds the indices of the even integers from 1 to 100 (i.e. outputs 2 4 6 8 etc.).
5. You can “multi-index” vectors. For example, `(3:8)[5]` outputs 7, but what does `(3:8)[c(1,3,5)]` output?
6. Using everything you learned above, write a line of code that computes the sum of the even numbers from 1 to 100.