Code Writing

1: Sum of Consecutive Numbers
Write a function `sum_consecutive`. It's argument is a function `f`, which takes in a number and returns either `True` or `False`. `sum_consecutive` should return the sum of every number starting at `0` and going up until the first number for which `f` returns `False`.

```
def sum_consecutive(f):
```

2: The Collatz Sequence
Write a function `collatz_sequence` that takes in a number `n` as its argument, and prints out every number in the Collatz sequence starting at `n` and ending at `1`. The Collatz number after a number `n` is half of `n` if `n` is even, or `3 * n + 1` if `n` is odd.

```
def collatz_sequence(n):
```

3: Every Longer Collatz
Write a function `collatz_sequence_length`, which takes in a number `n` and returns the length of the Collatz sequence starting `n`. The Collatz sequence of a number is the sequence printed out by `collatz_sequence`, in the previous problem. After you finish, write a function `every_longer_collatz` that takes no arguments, and prints out every number (starting at 1) whose Collatz sequence is longer than that of every number before it.

```
def collatz_sequence_length(n):
```

```
def every_longer_collatz():
```

4: Amicable Numbers

Write a function `sum_divisors` which takes in a number `n` and returns the sum of all the divisors of `n`. Then write a function `is_amicable`, that returns whether its input `n` is an amicable number. Amicable numbers come in pairs, where each one is the sum of the other's divisors. Lastly, write `every_amicable`, which prints out every amicable number up to `n`, and returns the sum of all those numbers.

```
def sum_divisors(n):
```

```
def is_amicable(n):
```

```
def every_amicable(n):
```