Matemática Discreta

Exercícios computacionais – Conjunto 2

Os problemas a seguir foram retirados do site Project Euler, que armazena uma série de desafios matemáticos e computacionais interessantes: https://projecteuler.net/archives

PROBLEM 10: Summation of primes

The sum of the primes below 10 is 2 + 3 + 5 + 7 = 17.

Find the sum of all the primes below two million.

PROBLEM 12: Highly divisible triangular number

The sequence of triangle numbers is generated by adding the natural numbers. So the 7th triangle number would be 1 + 2 + 3 + 4 + 5 + 6 + 7 = 28. The first ten terms would be:

1, 3, 6, 10, 15, 21, 28, 36, 45, 55, ...

Let us list the factors of the first seven triangle numbers:

 1: 1
 3: 1,3
 6: 1,2,3,6
10: 1,2,5,10
15: 1,3,5,15
21: 1,3,7,21
28: 1,2,4,7,14,28

We can see that 28 is the first triangle number to have over five divisors.

What is the value of the first triangle number to have over five hundred divisors?

PROBLEM 16: Power digit sum

2^{15} = 32768 and the sum of its digits is 3 + 2 + 7 + 6 + 8 = 26.

What is the sum of the digits of the number 2^{1000}?

OBS: A resposta final dos problemas pode ser conferida em

https://github.com/nayuki/Project-Euler-solutions/blob/master/Answers.txt