Special squarefree sum

[Award] **12 pts**

[Category] **Math**

A [squarefree number](https://en.wikipedia.org/wiki/Square-free_integer) is called special if it can be expressed as the sum of two positive squares. For example, 65(= 12+82) is a special squarefree number while 15 is not.

Let *S*(*N*) be the sum of all special squarefree numbers from 1 to *N*. You are given that S(10) = 17, S(1000) = 81665, S(106) = 61081126084.

Find S(1012).

[Answer] **43762566450798536018224**