Number spiral diagonals

Problem 28 (http://projecteuler.net/problem=028)

Starting with the number 1 and moving to the right in a clockwise direction a 5 by 5 spiral is formed as follows:

```
21 22 23 24 25
20  7  8  9 10
19  6  1  2 11
18  5  4  3 12
17 16 15 14 13
```

It can be verified that the sum of the numbers on the diagonals is 101.

What is the sum of the numbers on the diagonals in a 1001 by 1001 spiral formed in the same way?

Solution

In [1]:

```
def spiral(x=None):
    n = z = 1
    yield z
    while (x is None) or (n < x):
        n += 1
        for _ in range(4):
            z += n
            yield z
        n += 1

print(sum(spiral(1001)))
```

```
669171001
```