Digit fifth powers

Problem 30

Surprisingly there are only three numbers that can be written as the sum of fourth powers of their digits:

$$1634 = 1^4 + 6^4 + 3^4 + 4^4$$
$$8208 = 8^4 + 2^4 + 0^4 + 8^4$$
$$9474 = 9^4 + 4^4 + 7^4 + 4^4$$

As $1 = 1^4$ is not a sum it is not included.

The sum of these numbers is 1634 + 8208 + 9474 = 19316.

Find the sum of all the numbers that can be written as the sum of fifth powers of their digits.

Solution

In [1]:
```
def peq(n, p=5):
    return n == sum(int(x) ** p for x in str(n))
sum(n for n in range(2,200000) if peq(n))
```

Out[1]: 443839

Comment

Why 200 000? Dunno. For 1 000 000 result stays the same.