Pandigital products

Problem 32 (http://projecteuler.net/problem=32)

We shall say that an n-digit number is pandigital if it makes use of all the digits 1 to n exactly once; for example, the 5-digit number, 15234, is 1 through 5 pandigital.

The product 7254 is unusual, as the identity, 39 × 186 = 7254, containing multiplicand, multiplier, and product is 1 through 9 pandigital.

Find the sum of all products whose multiplicand/multiplier/product identity can be written as a 1 through 9 pandigital.

HINT: Some products can be obtained in more than one way so be sure to only include it once in your sum.

Solution

In [1]:

```
from functools import reduce
from itertools import permutations

nfl = lambda l: reduce(lambda x,y: x*10+y, l)
prs = []
for x in permutations(range(1,10)):
    if ((x[2]*x[4] % 10 == x[8]) and (nfl(x[:3])*nfl(x[3:5
        (x[3]*x[4] % 10 == x[8]) and (nfl(x[:4])*nfl(x[4:5
        prs.append(nfl(x[5:]))

print(sum(set(prs)))
```

```
45228
```