

# Problem of the Week 4

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By the requirements of the problem see that Peter's final number must be 666, 669, 696, 699, 966, 999, 996, or 969.

Writing a program, we can brute force check that the Peter's original number could be any element of

$\{135, 138, 234, 237, 333, 336, 432, 435, 531, 534, 630, 633, 732, 831, 930\}$

One can check each of these solutions and see that any one of them may have been Peter's number.

Here is the program that verifies this solution,

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```
targets = [666, 669, 696, 699, 999, 966, 996, 969]
three_digit_nums = list(range(100,1000))

good_nums = []
for num in three_digit_nums:
    string_num = str(num)
    reverse_num = int(string_num[::-1])
    if reverse_num + num in targets:
        good_nums.append(num)
print(good_nums)
[135, 138, 234, 237, 333, 336, 432, 435, 531, 534, 630, 633, 732, 831, 930]
```

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