Primes with pre-assigned digits

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Abstract

Say you wanted to find primes with your telephone number embedded in the digits in some order. Is it possible ? If you are writing numbers to base 10 the final digit must be $1, 3, 7$ or 9 to get a prime, so you must be careful if your phone number ends in any other digit. Forget the 0 at the beginning of your number and you are likely to get a 10 digit number. Is it true that given k, sufficiently large, you can preassign any 10 digits (with the aforementioned caveat on the final digit) and find primes ? We show this is true: indeed given any integer t there is a $k = k(t)$ such that we can preassign any t digits so long as the final digit (if preassigned) is $1, 3, 7$ or 9.