Conjecture on the numbers 6pq+1 where p and q primes and q=kp-k+1

Abstract. In this paper I make the following conjecture on the numbers of the form n = 6*p*q + 1, where p and q are primes and q = k*p – k + 1: There exist an infinity of n primes for any k positive integer, k > 1. Note that the conjecture implies that there exist an infinity of pairs of primes [p, q] such that q = k*p – k + 1, for any k positive integer, k > 1, which I already conjectured in previous papers, as well as that there exist an infinity of pairs of primes [p, q] such that q = k*p + k - 1, for any k positive integer, k > 1.

Conjecture:

There exist an infinity of primes **n of the form** n = 6*p*q + 1, where p and q are primes and q = k*p – k + 1, for any k positive integer, k > 1.
Note that the conjecture implies that there exist an infinity of pairs of primes [p, q] such that q = k*p – k + 1, for any k positive integer, k > 1, which I already conjectured in previous papers, as well as that there exist an infinity of pairs of primes [p, q] such that q = k*p + k - 1, for any k positive integer, k > 1.

The sequence of these primes for k = 2 (q = 2*p – 1):
: 547, 4219, 74419, 112327, 627919, 879667, 2310019 (...), obtained for [p, q] = [7, 13], [19, 37], [79, 157], [97, 193], [229, 457], [271, 541], [439, 877]...

    See A005382 in OEIS for primes p such that 2*p – 1 also prime.

The sequence of these primes for k = 3 (q = 3*p – 2):
: 2887, 39199, 49927, 79999, 336199, 587527, 3338527 (...), obtained for [p, q] = [13, 37], [47, 139], [53, 157], [67, 199], [137, 409], [181, 541], [431, 1291]...

    See A088878 in OEIS for primes p such that 3*p – 2 also prime.

The sequence of these primes for k = 4 (q = 4*p – 3):
: 2707, 82483, 283183, 530143, 872107, 1655323 (...), obtained for [p, q] = [11, 41], [59, 233], [109, 433], [149, 593], [191, 761], [263, 1049]...

    See A157978 in OEIS for primes p such that 4*p – 3 also prime.