The rule of twin prime numbers are infinite

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Abstract: Whether there are infinitely twin prime numbers is an unsolved problem. In this paper, we use a simple and clear method to find the rule that the twin prime numbers are infinitely.

Keywords: twin prime, number theory, infinitely

Introduction:

Whether there are infinitely many twin prime numbers is an unsolved problem. In this paper, we use a simple and clear method to find the rule that the twin prime numbers are infinitely.

List the twin prime numbers in order: {5,7},{11,13},{17,19},{29,31},{41,43},{59,61},{71,73},{101,103},{107,109},{137,139},{149,151},{179,181},

{191,193},{197,199}, {227,229},{239,241},{269,271},{281,283},{311,313},{347,349},.....

add up each groups, then divided by 2, get: 6, 12, 18, 30, 42, 60, 72, 102, 108, 138, 150, 180, 192, 198, 228, 240, 270, 282, 312, 348,.....

Rule:

18=6+12, 30=12+18, 42=30+12, 60=42+18,.....

Rule is :In this set of numbers, each number is add two numbers from the previous set, e.g. 198 = 192+6, 348=240+108.

twin prime before 5000:

{5, 7}, {11, 13}, {17, 19}, {29, 31}, {41, 43}, {59, 61}, {71, 73}, {101, 103}, {107, 109}, {137, 139}, {149, 151}, {179, 181}, {191, 193}, {197, 199}, {227, 229}, {239, 241}, {269, 271}, {281, 283}, {311, 313}, {347, 349}, {419, 421}, {431, 433}, {461, 463}, {521, 523}, {569, 571}, {599, 601}, {617, 619}, {641, 643}, {659, 661}, {809, 811}, {821, 823}, {827, 829}, {857, 859}, {881, 883}, {1019, 1021}, {1031, 1033}, {1049, 1051}, {1061, 1063}, {1091, 1093}, {1151, 1153}, {1229, 1231}, {1277, 1279}, {1289, 1291}, {1301, 1303}, {1319, 1321}, {1427, 1429}, {1451, 1453}, {1481, 1483}, {1487, 1489}, {1607, 1609}, {1619, 1621}, {1667, 1669}, {1697, 1699}, {1721, 1723}, {1787, 1789}, {1871, 1873}, {1877, 1879}, {1931, 1933}, {1949, 1951}, {1997, 1999}, {2027, 2029}, {2081, 2083}, {2087, 2089}, {2111, 2113}, {2129, 2131}, {2141, 2143}, {2237, 2239}, {2267, 2269}, {2309, 2311}, {2339, 2341}, {2381, 2383}, {2549, 2551}, {2591, 2593}, {2657, 2659}, {2687, 2689}, {2711, 2713}, {2729, 2731}, {2789, 2791}, {2801, 2803}, {2969, 2971}, {2999, 3001}, {3119, 3121}, {3167, 3169}, {3251, 3253}, {3257, 3259}, {3299, 3301}, {3329, 3331}, {3359, 3361}, {3371, 3373}, {3389, 3391}, {3461, 3463}, {3467, 3469}, {3527, 3529}, {3539, 3541}, {3557, 3559}, {3581, 3583}, {3671, 3673}, {3767, 3769}, {3821, 3823}, {3851, 3853}, {3917, 3919}, {3929, 3931}, {4001, 4003}, {4019, 4021}, {4049, 4051}, {4091, 4093}, {4127, 4129}, {4157, 4159}, {4217, 4219}, {4229, 4231}, {4241, 4243}, {4259, 4261}, {4271, 4273}, {4337, 4339}, {4421, 4423}, {4481, 4483}, {4517, 4519}, {4547, 4549}, {4637, 4639}, {4649, 4651}, {4721, 4723}, {4787, 4789}, {4799, 4801}, {4931, 4933}, {4967, 4969},

get:

6, 12, 18, 30, 42, 60, 72, 102, 108, 138, 150, 180, 192, 198, 228, 240, 270, 282, 312, 348, 420, 432, 462, 522, 570, 600, 618, 642, 660, 810, 822, 828, 858, 882, 1020, 1032, 1050,

1062, 1092, 1152, 1230, 1278, 1290, 1302, 1320, 1428, 1452,
 1482, 1488, 1608, 1620, 1668, 1698, 1722, 1788, 1872, 1878,
 1932, 1950, 1998, 2028, 2082, 2088, 2112, 2130, 2142, 2238,
 2268, 2310, 2340, 2382, 2550, 2592, 2658, 3300, 3330, 3360,
 3372, 3390, 3462, 3468, 3528, 3540, 3558, 3582, 3672, 3768,
 3822, 3852, 3918, 3930, , 4002, 4020, 4050, 4092, 4128, 4158,
 4218, 4230, 4242, 4260, 4272, 4338, 4422, 4482, 4518, 4548,
 4638, 4650, 4722, 4788, , 4800, 4932, 4968

Rule: In the array above, any number is the sum of the two numbers in the previous group

Validation:

18=6+12, 30=12+18, 42=30+12, 60=42+18, 72=60+18, 102=72+30, 108=102+6, 138=108+30, 150=138+12, 180=150+30, 192=180+12, 198=192+6,
 228=198+30, 240=228+12, 270=240+30, 282=270+12, 312=282+30, 348=240+108, 420=312+108, 432=420+12, 462=432+30, 522=462+60, 570=462+108, 600=570+300,
 618=600+18, 642=600+42, 810=660+150, 822=810+12, 828=822+6, 858=828+30, 882=822+60, 1020=828+192, 1032=1020+12, 1050=1020+30, 1062=1050+12, 1092=1062+30
 1152=1092+60, 1230=1092+138, 1278=228+1050, 1290=1278+12, 1302=1290+12, 1320=1302+18, 1428=1320+108, 1452=1302+150, 1482=1452+30, 1488=1482+6,
 1608=180+1428, 1620=1608+12, 1668=1608+60, 1698=1668+30, 1722=1620+102,
 1788=1608+180, 1872=1722+150, 1878=1872+6, 1932=1872+60, 1950=1932+18, 1998=1428+570, 2028=1998+30, 2082=1932+150, 2088=2082+6, 2112=2082+30, 2130=2112+18, 2142=2130+12, 2238=2130+108, 2268=2238+30, 2310=2268+42, 2340=2310+30,
 2382=2340+42, 2550=2310+240, 2592=2550+42, 2658=2550+108, 3300=642+2658, 3330=3300+30, 3360=3330+30, 3372=3360+12, 3390=3372+18, 3462=72+3390, 3468=3462+6, 3528=3468+60,
 3540=3528+12, 3558=3540+18, 3582=3540+42, 3672=282+3390, 3768=3672+6,
 3822=150+3672, 3852=3822+30, 3918=3768+150, 3930=3918+12, 4002=3930+72, 4020=4002+18, 4050=4020+30, 4092=4050+42, 4128=4020+108, 4158=4128+30, 4218=4158+60, 4230=4218+12, 4242=4230+12,
 4260=4242+18, 4272=4260+12, 4338=4230+108,
 4422=4272+150, 4482=4422+60, 4518=180+4338, 4548=4518+30,
 4638=420+4218, 4650=4638+12, 4722=4650+72, 4788=4722+60, 4800=4788+12, 4932=282+4650, 4968=180+4788

Verification results: no exception

Conclusion:Based on the rule, there are infinite number of twin primes. So it's going to get bigger and bigger, and there's going to be an infinite number of twin primes because it's going to get bigger and bigger! For every two sets of prime twins, a third set of prime twins must be created, and the previous two sets of prime twins, added together, will produce a new set of prime twins. And iterate!