

Zeckendorfs-Decomposition-of-the-First-15-Factoriangular-Numbers

$$Ft_n = n! + T_n = n! + \frac{n(n+1)}{2}.$$

最初のいくつかの因数角数は次のとおりです。

n	$n!$	T_n	$Ft_n = n! + T_n$
1	1	1	2
2	2	3	5
3	6	6	12
4	24	10	34
5	120	15	135
6	720	21	741
7	5,040	28	5,068
8	40,320	36	40,356
9	362,880	45	362,925
10	3,628,800	55	3,628,855

これらの数字は、[オンライン整数シーケンス百科事典\(OEIS\)](#)の整数シーケンス A101292 を形成します。

n	Ft_n	Zeckendorf's Decomposition
1	2	F_3
2	5	F_5
3	12	$F_6 + F_4 + F_2$
4	34	F_9
5	135	$F_{11} + F_9 + F_6 + F_4 + F_2$
6	741	$F_{15} + F_{11} + F_9 + F_6$
7	5068	$F_{19} + F_{15} + F_{13} + F_9 + F_6 + F_3$
8	40356	$F_{23} + F_{21} + F_{15} + F_{11} + F_9 + F_7 + F_5 + F_3$
9	362925	$F_{28} + F_{23} + F_{21} + F_{19} + F_{16} + F_{13} + F_{11} + F_8$
10	3628855	$F_{33} + F_{25} + F_{23} + F_{14} + F_{12} + F_{10} + F_7 + F_5 + F_2$
11	39916866	$F_{38} + F_{29} + F_{27} + F_{25} + F_{23} + F_{21} + F_{18} + F_{15} + F_{12} + F_{10} + F_8 + F_6$
12	479001678	$F_{43} + F_{38} + F_{34} + F_{29} + F_{27} + F_{19} + F_{16} + F_{13} + F_{11} + F_9 + F_7 + F_2$
13	6227020891	$F_{48} + F_{45} + F_{42} + F_{36} + F_{31} + F_{28} + F_{25} + F_{20} + F_{12} + F_{10} + F_8 + F_5 + F_3$
14	87178291305	$F_{43} + F_{38} + F_{34} + F_{29} + F_{27} + F_{19} + F_{16} + F_{13} + F_{11} + F_9 + F_7 + F_2$
15	1307674368120	$F_{59} + F_{56} + F_{54} + F_{52} + F_{48} + F_{44} + F_{42} + F_{40} + F_{32} + F_{29} + F_{26} + F_{24} + F_{21} + F_{16} + F_{14} + F_{12} + F_{10} + F_8 + F_3$

Given the increasing number of terms in the Zeckendorf's decomposition as Ft_n gets larger, the following statements are believed to be true:

Conjecture 3. $Ft_1 = 2$, $Ft_2 = 5$ and $Ft_4 = 34$ are the only factoriangular numbers that are also Fibonacci numbers.