1. Code for this problem is in folder named “1\_Pell”.

Since the Binet-type formula employs floating point arithmetic and there are accuracy issues that increase as we proceed to higher terms of the series, a direct implementation of the Binet-type formula test fails for bigger values of pn.

In order to compare the formula's result to the appropriate member of the vector of Pell numbers, I used the function "round" to round the result of the formula to the nearest integer value.

1. Code for this problem is in folder named “2\_tanh”.
2. Code for this problem is in folder named “3\_tanh\_cont\_frac”.
3. Code for this problem is in folder named “4\_Polynomial”.

The binomial expansion for (x−1)7 is:

x7 - 7x6 + 21x5 - 35x4 + 35x3 - 21x2 + 7x - 1

The extended polynomial and the original polynomial are quite similar to one another while x is near to 1, but as x travels away from 1, they begin to diverge. This is because a lot of high-order terms, such x6 and x5, which become relevant when x deviates from 1, are included in the enlarged polynomial.

Chart, line chart

Description automatically generated