As per Zipf’s law the frequency and the rank are inversely proportional to each other. That is, the frequency of a word occurences decrease in a corpus, the rank increases. Hence the below graph is a slope.

However, the relationship between rank and frequence breaks at high and low ranks based on the graph and the below calculations

r \* (n/N) = c

The constant at different ranks comes to the below value:

(At rank 1)1 \* (1714/2586978) = 0.00066

(at rank 50) 50 \* (387/2586978) = 0.0074

