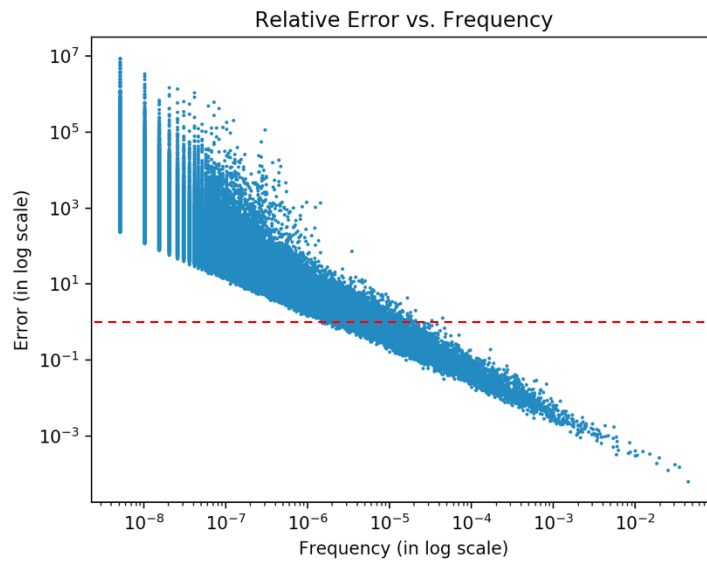


**Problem 4 Part b**

What is an approximate condition on a word frequency in the document to have a relative error below 1?



From the plot, when the word frequency is around over  $10^{-5}$ , we can get a relative error below 1.