Gabriel Hearot November 16, 2019

**Proposition 1.** Given a natural number which is represented as  $a_n 10^n + a_{n-1} 10^{n-1} + ... + a_1 10 + a_0$ , this is a **caterinian number** if  $\sum_{i=0}^n \sum_{k=0}^n |a_i - a_{n-k}|$ 

$$\sum_{i=0}^{n} \sum_{k=0}^{n} |a_i - a_{n-k}|$$