**Questions from Hank Jiaqi Shen**

Q1: Let be n data obtained form a random variable ,



=; where

Prove that makes minimum.

Q2: Consider

Q3: (Research questions) How about ?

Q4: Find the consequences of Q1 in

(a) Triangle. (Centroid)



(b) Graph Theory.

Q1: Let X and Y be a random variables. , exist. Prove that

; =;

Q2: Let X be a random variable. , and exist. Prove that,

;

Q3: Is it possible that X has at least 2 different values but =, provided that and exist. If it is possible give at least one example. Otherwise, prove your conclusion.

Q4: Is it possible that does not exist?