HW 2

3   LET α BE FIXED POINT $\cancel{IN}$ OF $g(x)$

COMMON

$$x_{n+1} = g(x_n)$$

SUPPOSE

$$\text{MAX} \; |g'(x)| = k < 1$$

PROVE THAT

$$|\alpha - x_{n+1}| \leq \frac{k}{1-k} |x_{n+1} - x_n|$$

REMEMBER, BY MVT,

$$|\alpha - x_{n+1}| = |g'(\xi)||\alpha - x_n| \leq k|\alpha - x_n|$$