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$f: \mathbb{R} \longrightarrow \mathbb{R}$ such

that

$$\forall x, y \in \mathbb{R}$$

$$|f(x) - f(y)| \leq K |x - y|^\alpha$$

$$K > 0, \alpha > 0$$

(i) if $0 < \alpha < 1$ then f is

uniform cts & continuous

(ii) if $\alpha = 1$ then f is
Lipschitz cts, u.c.

and cts

(iii) if $\alpha > 1$ then f is constant

then f is diff, cts, u.c.
& Lipschitz cts