Limit and Continuity

f is Continous at x=a then |f| is continous at x=a

Given

To Prove

Proof

f is Continous at x=a.

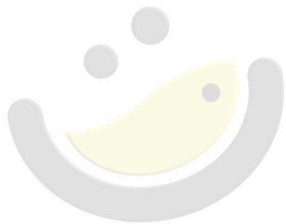∴ By def.

$$|f(x) - f(a)| < \epsilon \quad \text{for} \quad |x-a| < \delta \quad \text{——} ① $$

$$||f|(x) - |f|(a)| = ||f(x)| - |f(a)||$$

$$\leq |f(x) - f(a)| < \epsilon \quad \text{for} \quad |x-a| < \delta$$

$$||a| - |b||$$
$$\leq |a-b|$$

∴ By def. of Continuity of Limit

$|f|$ is continous at $x = a$.

Hence Proved