4.5 Indeterminate forms & l'hopital Rule

$\frac{0}{0}, \frac{\infty}{\infty}$ → Indeterminate Ratios (we use l'hopital Rule)

$(0)(\infty)$, $\infty - \infty$ → Indeterminate Product

0^0, 1^∞, ∞^0 → Indeterminate Powers

$f(x), g(x)$ - cont - diff

$f(c) = 0$

$g(c) = 0$

Then $\lim_{x \to c} \frac{f}{g} = \frac{0}{0}$

exists & $= \lim_{x \to c} \frac{f'(x)}{g'(x)} \neq 0$

VI Remark:- if $f(x)$ is cont Then $\lim_{x \to c} f(x) = \lim_{x \to c} e^{\ln f(x)}$

and $= e^{\ln \lim_{x \to c} f(x)}$ because $\ln x$ is a cont function

- Reuse This in the ind. Powers

Alaa Ftaiwi