Indeterminate Form.

1. Indeterminate Forms.

1) If $\begin{cases} \lim_{x\to a} f(x)=0 \\ \lim_{x\to a} g(x)=0 \end{cases}$, then can't draw conc about : $\lim_{x\to a} \frac{f(x)}{g(x)}$.

We say $\frac{0}{0}$ is a indeterminate form.

2) Common forms.

① $\frac{0}{0}$ ④ 0^0

② $\frac{\pm\infty}{\pm\infty}$ ⑤ ∞^0

③ $0\cdot\infty$ ⑥ $1^{\pm\infty}$

④ $\infty-\infty$

3) About $\frac{1}{0}$. (not Indetermine form).

e.g. Assume $\begin{cases} \lim_{x\to a} f(x)=1. \\ \lim_{x\to a} g(x)=0. \end{cases}$ $\rightarrow$ conclude: $\lim_{x\to a}\left|\frac{f(x)}{g(x)}\right|=\infty$

If $g(x)>0$ as $x\to a$, $\lim_{x\to a}\frac{f(x)}{g(x)}=\infty$.

... <0 ... , $\lim_{x\to a}\frac{f(x)}{g(x)}=-\infty$.