

15

«ضرب كل طرف» «اللي في اليمين» «نزلناهم دتر»

① ا) $\lim_{x \rightarrow 2^+} \frac{x+5}{x+1} \rightarrow \frac{2+5}{2+1} = \frac{7}{3} = \lim_{x \rightarrow 2^+} \frac{7}{3}$ ب) $\lim_{x \rightarrow 2^-} \frac{x+5}{x+1} = \frac{7}{3} = \lim_{x \rightarrow 2^-} \frac{7}{3}$

ج) $\lim_{x \rightarrow 2} \frac{x+5}{x+1} \rightarrow \frac{7}{3}$ د) $\lim_{x \rightarrow 0} \frac{x+7}{x^2} \rightarrow \frac{7}{0} = \infty$ (نصفه مشدود)

② ا) $\lim_{x \rightarrow 0^-} \{x\} - 2 \rightarrow \{0\} - 2 \rightarrow -2$

ب) $\lim_{x \rightarrow 0^+} \{x\} - 2 \rightarrow \{0\} - 2 \rightarrow -2$

ج) $\lim_{x \rightarrow 0} \{x\} - 2 \rightarrow \{0\} - 2 \rightarrow -2$

د) $\lim_{x \rightarrow 0} \{x\} - 2 \rightarrow \{0\} - 2 \rightarrow -2$

③ ا) $\lim_{x \rightarrow 0^-} \frac{x^2+1}{x} \rightarrow \frac{1}{0^-} = -\infty$

ب) $\lim_{x \rightarrow 0^+} \frac{x^2+1}{x} \rightarrow \frac{1}{0^+} = +\infty$

ج) $\lim_{x \rightarrow 0} \frac{x^2+1}{x} \rightarrow \frac{1}{0} = \infty$

د) $\lim_{x \rightarrow 0} \frac{x^2+1}{x} \rightarrow \frac{1}{0} = \infty$

④ ا) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+4} \rightarrow \frac{-4}{0} = \infty$ ب) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+4} \rightarrow \frac{-4}{0} = \infty$

⑤ ا) $\lim_{x \rightarrow -3} [-x] - [5x]$

ب) $\lim_{x \rightarrow -3^+} [-x] - [5x] = 3 - 15 = -12$

ج) $\lim_{x \rightarrow -3^-} [-x] - [5x] = 3 - 15 = -12$

د) $\lim_{x \rightarrow (-\frac{1}{14})^-} \left[\frac{1}{x^2} \right] \rightarrow x < -\frac{1}{14} \rightarrow x^2 < \frac{1}{14}$

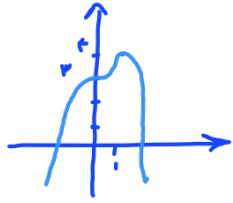
هـ) $\lim_{x \rightarrow (-\frac{1}{14})^-} \left[\frac{1}{x^2} \right] \rightarrow \frac{1}{x^2} > 14 \rightarrow \frac{1}{x^2} > 14$

و) $\lim_{x \rightarrow (-\frac{1}{14})^-} \left[\frac{1}{x^2} \right] = 14$

$$\text{رالف} \quad \lim_{x \rightarrow 1} [f_x^r - f_x^f + f^r] \rightarrow \lim_{x \rightarrow 1} [f^r] = r$$

$$y = f_x^r - f_x^f + f^r \rightarrow y' = 1x^r - 1x^r \xrightarrow{y'=0} 1x^r(1-x) = 0 \rightarrow \begin{cases} x=0 \\ x=1 \end{cases}$$

u $-\infty$ 0 1 $+\infty$
 y $+$ $+$ $-$
 y $\nearrow$ $\nearrow$ $\rightarrow$



$$\text{b.) } \lim_{x \rightarrow \pi} \frac{\sin x}{\sin^2 x} \xrightarrow{\text{L'Hôpital}} \frac{-\cancel{\sin x}}{2\cancel{\sin x} \cos x} = \frac{1}{2}$$

$\lim_{x \rightarrow \pi^-} \frac{\sin x}{x \sin x \cos x} = \frac{-1}{\pi \cdot (-1)} = \frac{1}{\pi}$

مقدمه

$\rightarrow \lim_{x \rightarrow 0} \sqrt{x-2\sqrt{x}} \cdot \frac{1}{(x-2\sqrt{x})^{\frac{1}{2}}} \rightarrow \sqrt{x}(\sqrt{x}-2)^{\frac{1}{2}}$

① $\lambda \rightarrow 0^+$ سریع نشود

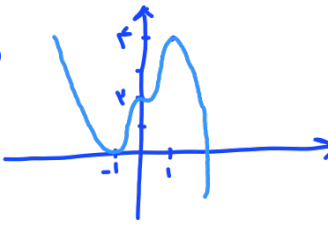
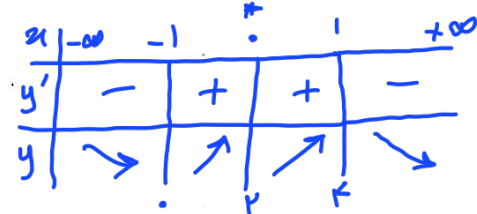
تعارف منہند $\rightarrow$ ۲۸

1,8

1

$$\begin{cases} x = - \\ x = 1 \\ x = -1 \end{cases}$$

0



$$\begin{cases} x = 0 \\ x = 1 \\ x = -1 \end{cases}$$

