

$$\text{الف) } \frac{9}{3}, 3$$

①

$$\text{ب) } \frac{9}{3}, 3$$

$$\text{ج) } \frac{9}{3}, 3$$

$$\text{د) } \frac{9}{3}, 3$$

$$\text{الف) } 1-2, 6 \quad \text{ب) } [12-2], 9 \quad \text{ج) } 10 \quad \text{د) } 10$$

②

$$\text{الف) } \frac{9}{3} \quad \text{ب) } 4 \quad \text{ج) } 8 \quad \text{د) } 8$$

③

$$\text{الف) } \lim_{n \rightarrow 1} \frac{n-8}{n^2-7n+8} = \frac{n-8}{(n-1)(n-8)} = \frac{1}{n-1} \left[\begin{array}{l} \xrightarrow{+} \frac{1}{0^+}, +\infty \\ \xrightarrow{-} \frac{1}{0^-}, -\infty \end{array} \right] \quad \text{④}$$

$$\text{ب) } \lim_{n \rightarrow 2} \frac{n-4}{n^2-7n+9} = \frac{n-4}{(n-2)^2} = \frac{-1}{0^+} = -\infty$$

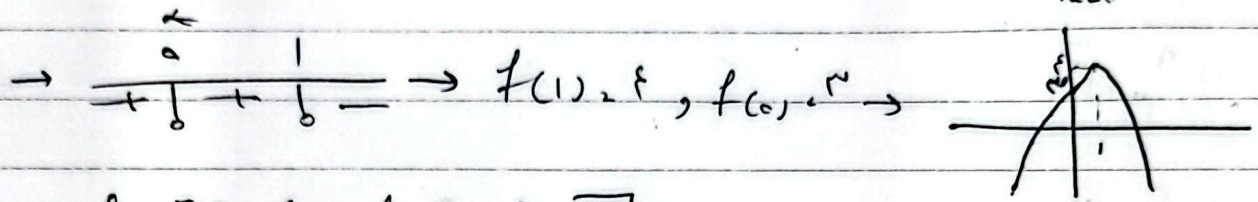
بدلیل وجود توان ۲ در مخرج و ۱ در صورت
راستی و چپ ۰+ خواهد شد.

$$\text{الف) } -\infty^+ \rightarrow -\infty, 9^- \rightarrow [9^-], 8 \quad \text{و} \quad \partial n, -15^+ \rightarrow [-15^+], -15 \rightarrow [-\infty] - [\partial n] = 1 - (-15) = 16$$

$$-9^- \rightarrow -\infty, 9^+ \rightarrow [9^+], 9 \quad \text{و} \quad \partial n, -15^- \rightarrow [\partial n], -15 \rightarrow [-\infty] - [\partial n] = 16$$

$$\text{ب) } n < \frac{1}{4} \rightarrow n^4 > \frac{1}{16} \rightarrow -n^4 < \frac{1}{16} \rightarrow \frac{1}{-n^4} > -16 \rightarrow \left[\frac{-1}{n^4} \right], -16$$

الف) $f(x) = f(x^2 - x^2 + 1) \rightarrow f(x) = 1 - x^2 \rightarrow 1 - (1-h) = h \rightarrow h=1$ (٦)



$\rightarrow \lim_{x \rightarrow 1} [f(x)] = \lim_{x \rightarrow 1} [1 - x^2] = 0$

ب) $\begin{aligned} 0^+ &\rightarrow \lim_{x \rightarrow 0^+} [x^2] = 0 \\ 0^- &\rightarrow \lim_{x \rightarrow 0^-} [x^2] = 0 \end{aligned}$

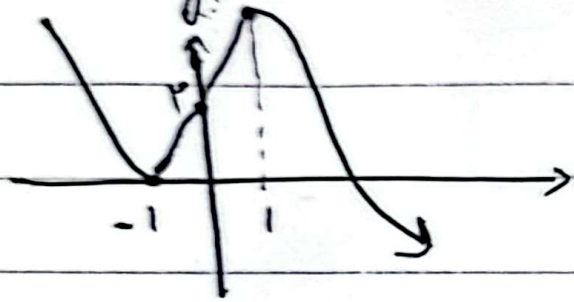
الف) $\begin{aligned} x^+ &\rightarrow \frac{x^2 - 1}{x^2 - 1} = \frac{(x-1)(x+1)}{(x-1)(x+1)} = \frac{x+1}{x+1} = 1 \\ x^- &\rightarrow \frac{-(x^2 - 1)}{(x^2 - 1)} = \frac{-1}{1} = -1 \end{aligned}$ (٧)

ب) $\begin{aligned} x^- &\rightarrow \frac{\sin x}{\cos x} = \frac{1}{\cos x} = \frac{1}{1} = 1 \\ x^+ &\rightarrow \frac{-\sin x}{\cos x} = \frac{-1}{1} = -1 \end{aligned}$

الف) $\frac{x^2}{x} \rightarrow \lim_{x \rightarrow \frac{\pi}{2}^+} \cos x = 0$ ب) $0^+ \rightarrow \cos(\sqrt{0^+})$
 ج) $\frac{x^2}{x} \rightarrow \lim_{x \rightarrow \frac{\pi}{2}^-} \cos x = 0$ د) $0^- \rightarrow \cos(\sqrt{0^-})$

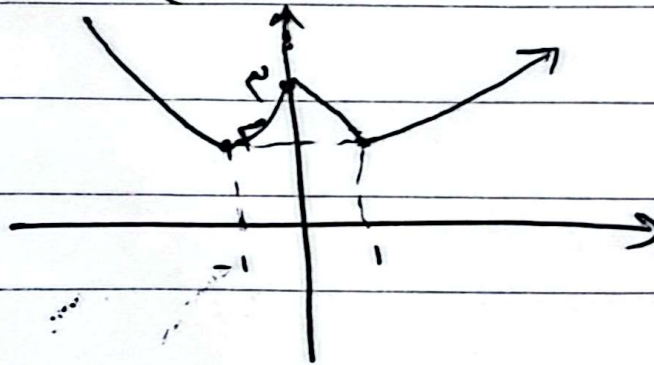
الف) $\frac{1}{x^2(x-1)} = \frac{1}{0^-} = -\infty$ ب) $x^+ \rightarrow \frac{x^2 - 1}{x^2 - 1} = \frac{x+1}{x+1} = 1$ (٩)
 ج) $x^- \rightarrow \frac{x^2 - 1}{x^2 - 1} = \frac{x+1}{x+1} = 1$

الف) $y' = 12x^2 - 12x \rightarrow 12x^2(1-x) \rightarrow \frac{-1 \pm \sqrt{1+12}}{2} \rightarrow \frac{1}{2}, \frac{5}{2}, 0$ (10)



ب) $y' = 6x^2 - 6x \rightarrow 6x(x-1) = 0 \rightarrow x = 0, x = 1$

$\frac{1}{2}, \frac{5}{2}, -\frac{1}{2}$



بوابات