

الف) $\lim_{a \rightarrow 2^+} \frac{2a+5}{a+1} = \frac{9}{3} = 3$ ب) 3

ج) 3

هیا تایی - دفتر A
 1) $\frac{0^+}{0} = \frac{1}{0} = \infty$
 $\frac{0^-}{0} = \frac{-1}{0} = -\infty$

عبارت

الف) $\lim_{a \rightarrow 2^-} \varepsilon [a] - 2 \rightarrow \varepsilon [3^-] - 2 \rightarrow \varepsilon \times 2 - 2 \rightarrow 4$

2

ب) $\lim_{a \rightarrow 2^-} [\varepsilon a - 2] \xrightarrow{a=3} 10 \xrightarrow{\text{تابع معکوس}} [10^-] = 9$

ج) $\left[\lim_{a \rightarrow 3} \varepsilon a - 2 \right] = 10$

د) $\left[\lim_{a \rightarrow 3^+} \varepsilon a - 2 \right] = 10$

الف) $\lim_{a \rightarrow 2^-} \frac{3[a]+1}{2} \rightarrow \frac{3 \times 2 + 1}{2} = \frac{7}{2}$

3

ب) $\lim_{a \rightarrow 2^-} \left[\frac{3a+1}{2} \right] \xrightarrow{a=3} 10 \xrightarrow{\text{تابع معکوس}} [10^-] = 9$

ج) $\left[\lim_{a \rightarrow 2^-} \frac{3a+1}{2} \right] = 5$

د) $\left[\lim_{a \rightarrow 2^+} \frac{3a+1}{2} \right] = 5$

الف) $\lim_{a \rightarrow 1} \frac{a-5}{a^2-4a+5} \xrightarrow{a=1} \frac{-4}{0} \rightarrow \frac{1}{+|-|+} \rightarrow \begin{cases} 1^+ \rightarrow \frac{-4}{0^-} = +\infty \\ 1^- \rightarrow \frac{-4}{0^+} = -\infty \end{cases}$ عبارت

ب) $\lim_{a \rightarrow 3} \frac{a-4}{a^2+4a+9} \xrightarrow{a=3} \frac{-1}{0} \rightarrow \frac{3}{+|+|+} \rightarrow \begin{cases} 3^+ \rightarrow \frac{-1}{0^+} = -\infty \\ 3^- \rightarrow \frac{-1}{0^-} = -\infty \end{cases}$ عبارت

الف) $\lim_{a \rightarrow -2} [-3a] - [-5a] \xrightarrow{a=-3} [9] - [-15] \rightarrow -3^+ = [9^-] - [-15^+]$ چون تابع نزویه چون صعودیه = 11+15=26

$-3^- = [9^+] - [-15^-]$ چون نزویه چون صعودیه

$9 - (-14) = 25$

$$\rightarrow \lim_{\alpha \rightarrow (-\frac{1}{r})^-} \left[\frac{-1}{\alpha \epsilon} \right] \xrightarrow{\alpha = -\frac{1}{r}} \left[\frac{-1}{-\frac{1}{r}} \right] = [r] \rightarrow -1$$

$$\text{احف) } \lim_{\alpha \rightarrow 1} [\epsilon \alpha^3 - 3\alpha \epsilon + 3] = \epsilon$$

④

$$\rightarrow \lim_{\alpha \rightarrow 0} [\epsilon \alpha^3 - 3\alpha \epsilon + 3] = 3$$

$$\text{احف) } \lim_{\alpha \rightarrow r} \frac{|\alpha^3 - 1|}{\alpha^2 - \epsilon}$$

$\rightarrow r^+ \quad \frac{\alpha^3 - 1}{\alpha^2 - \epsilon} = \frac{0}{0} \rightarrow \frac{(r - \epsilon)(r^2 + \epsilon + r\alpha)}{(r - \epsilon)(r + \epsilon)} = \frac{r}{\epsilon} = r \quad \text{⑤}$
 $\rightarrow r^- \quad \frac{-(\alpha^3 - 1)}{(\alpha^2 - \epsilon)} = \frac{0}{0} \rightarrow \frac{r^3 - 1}{r^2 - \epsilon} = -r \quad \text{⑥}$

$$\rightarrow \lim_{\alpha \rightarrow \pi} \frac{|\sin \alpha|}{\sin 2\alpha} = \frac{0}{0}$$

$\rightarrow \pi^+ \quad \frac{|\sin \alpha|}{\sin 2\alpha} = \frac{-\sin \alpha}{\sin 2\alpha} = \frac{-\sin \alpha}{2 \sin \alpha \cos \alpha} = \frac{-1}{2 \cos \pi} = +\frac{1}{2}$
 $\rightarrow \pi^- \quad \frac{|\sin \alpha|}{\sin 2\alpha} = \frac{\sin \alpha}{\sin 2\alpha} = \frac{\sin \alpha}{2 \sin \alpha \cos \alpha} = \frac{1}{2 \cos \pi} = -\frac{1}{2}$

①

$$\text{احف) } \lim_{\alpha \rightarrow \frac{\pi}{2}} \sqrt{\cos \alpha} = \sqrt{0}$$

$\rightarrow \frac{\pi}{2}^+ \quad \sqrt{0^+} = +\infty$
 $\rightarrow \frac{\pi}{2}^- \quad \sqrt{0^-} = \text{X}$

$$\rightarrow \lim_{\alpha \rightarrow 0} \sqrt{\alpha - 2\sqrt{\alpha}} = \sqrt{0}$$

$\rightarrow 0^+ \quad \sqrt{\frac{1}{100} - 2\sqrt{\frac{1}{100}}} = \sqrt{\text{موجب}} = \text{X}$
 $\rightarrow 0^- \quad \sqrt{-\frac{1}{100} - 2\sqrt{-\frac{1}{100}}} = \text{X}$

(9) $\lim_{x \rightarrow 0^+} \frac{(-1)^{\lfloor \sin x \rfloor}}{x^3 - x^2} \rightarrow \sin 0 = 0 \quad \oplus$
 $\frac{(-1)^{\lfloor 0^+ \rfloor}}{x^3 - x^2} = \frac{1}{x^3 - x^2} = \frac{1}{0}$
 تعريف مساره

$\rightarrow \lim_{x \rightarrow 2} \frac{x^2 - \lfloor x^2 \rfloor}{x - \lfloor x \rfloor}$
 $\nearrow \begin{matrix} 2^+ \\ 2^- \end{matrix}$
 $\frac{x^2 - 4}{x - 2} = \frac{0}{0} \rightarrow \frac{(x-2)(x+2)}{(x-2)} = x+2 \quad \text{---} \quad \textcircled{4}$
 $\frac{x^2 - 4}{x - 2} = \frac{1}{1} = \textcircled{1}$

(10) $y = 5x^3 - 3x^2 + 2 \rightarrow 15x^2 - 6x$
 $\frac{15}{30} = \frac{1}{2} \quad \frac{0}{0} \quad \frac{1}{2} \quad \frac{0}{0}$
 $\frac{10}{2} = \frac{50}{2}$