

امین جلالی

۱۹/۲۵

☆ نکته

$$\begin{aligned} \begin{matrix} -1^+ \\ -1^- \end{matrix} &\rightarrow \begin{matrix} 1 \left[\frac{1 - (-1^+)}{1} \right] + a \left[\frac{-1^+ + 1}{1} \right] = 1(1) - a \\ 1 \left[\frac{1 - (-1^-)}{1} \right] + a \left[\frac{-1^- + 1}{1} \right] = 1(1) - a \end{matrix} \Rightarrow 1 - a = 1 \Rightarrow a = 0 \\ &\Rightarrow \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix} \end{aligned}$$

(1)

(1,5)

$$\lim_{x \rightarrow 1} \left[1 \left(\frac{1}{x} \right) - 1 \right] \rightarrow \begin{bmatrix} 0^- \\ -1 \end{bmatrix} = \begin{bmatrix} 0^- \\ -1 \end{bmatrix} \checkmark$$

(2)

$$\begin{aligned} -\frac{1}{x}^+ &\rightarrow \left[1 \left(-\frac{1}{x} \right)^+ - \left(\frac{1}{x} \right)^+ \right] = \begin{bmatrix} 0^- \\ -1 \end{bmatrix} = -1 \\ &\Rightarrow \text{مستطرد} \end{aligned}$$

(3)

(1,5)

$$\begin{aligned} \Rightarrow \begin{bmatrix} \frac{1}{x^+} \end{bmatrix} &= \begin{bmatrix} 1^+ \end{bmatrix} = 1 \\ \Rightarrow \begin{bmatrix} -\frac{1}{x^+} \end{bmatrix} &= \begin{bmatrix} (-1)^+ \end{bmatrix} = -1 \end{aligned} \Rightarrow \lim_{x \rightarrow -\frac{1}{x}} \frac{\log x - \log + 11}{+14x + 11} = \frac{1}{0^-} = \begin{bmatrix} 1 \\ -\infty \end{bmatrix}$$

(4)

$$\lim_{x \rightarrow 1^+} \frac{\sin^2 \pi x}{1 + \cos \pi x} \xrightarrow[\text{مجموع است}]{\text{رنگ ابعادی}} \frac{1 - \cos^2 \pi x}{1 + \cos \pi x} \Rightarrow 1 - \cos \pi x \rightarrow 1 - (-1) = 2$$

(5)

$$\begin{aligned} \frac{\sin^2 \pi x}{1 + \cos \pi x} &\xrightarrow[\text{مجموع است}]{\text{رنگ ابعادی}} \text{kop} \rightarrow \frac{\frac{1}{x} - \frac{1}{x}}{\frac{1}{x} - \frac{1}{x}} \xrightarrow{x \rightarrow -1} \frac{\frac{1}{x} - \frac{1}{x}}{\frac{1}{x} - \frac{1}{x}} = \frac{-\frac{1}{x}}{\frac{1}{x}} = -1 \end{aligned}$$

(6)

$$\begin{aligned} \frac{\sin^2 \pi x}{1 + \cos \pi x} &\xrightarrow[\text{مجموع است}]{\text{رنگ ابعادی}} \text{kop} \rightarrow \frac{\frac{1}{x} - \frac{1}{x}}{\frac{1}{x} - \frac{1}{x}} \xrightarrow{x \rightarrow 1} \frac{\frac{1}{x} - \frac{1}{x}}{\frac{1}{x} - \frac{1}{x}} = \frac{-\frac{1}{x}}{\frac{1}{x}} = -1 \end{aligned}$$

(7)

$$\lim_{n \rightarrow -r^+} f(n) = \lim_{n \rightarrow -r^-} f(n)$$

$$\lim_{n \rightarrow -r^+} f(n) = r \left[1 - \left(\frac{-r^+}{r} \right) \right] + a \left[\frac{r + (-r)^+}{r} \right] = r[r^-] + a[.] = r$$

$$\lim_{n \rightarrow -r^-} f(n) = r \left[1 - \left(\frac{-r^-}{r} \right) \right] + a \left[\frac{r + (-r)^-}{r} \right] = r[r^+] + a[.] = r - a$$

$$\left. \begin{array}{l} \lim_{n \rightarrow -r^+} f(n) = r \\ \lim_{n \rightarrow -r^-} f(n) = r - a \end{array} \right\} a = r \rightarrow \left[\frac{r}{r} \right] = 0$$

$$\lim_{x \rightarrow 0} \frac{b}{r\sqrt{bx+c}} \xrightarrow{\text{hosp}} \frac{b}{r\sqrt{bx+c}} \xrightarrow{x \rightarrow 0} \frac{b}{r\sqrt{c}} = \frac{1}{r} \Rightarrow b=1, c=r$$

⑧

$$\Rightarrow a + \sqrt{bx+c} \xrightarrow{x \rightarrow 0} a + \sqrt{r} = 0 \Rightarrow a = -\sqrt{r} \Rightarrow \frac{-r(1)}{r} = -\frac{1}{r}$$

⑨

$$\xrightarrow{-1\pi^+} \frac{r + k \left[\frac{-1\pi^+}{\pi} \right]}{0^+} = \frac{r - rk}{0^+} \Rightarrow r - rk > 0 \Rightarrow k < r$$

⑨

$$\xrightarrow{-1\pi^-} \frac{r + k \left[\frac{-1\pi^-}{\pi} \right]}{0^-} = \frac{r - rk}{0^-} \Rightarrow r - rk < 0 \Rightarrow k > \frac{r}{r}$$

⑩

$$\Rightarrow \frac{r}{r} < k < r \Rightarrow -\frac{r}{r} < -k < -r \Rightarrow [k] = -\frac{r}{r}$$

$$\lim_{x \rightarrow 0} \frac{b\sqrt{1+\sqrt{x}} - rb}{ax-b} = \frac{0}{0} \xrightarrow{\text{hosp}} \frac{\frac{b}{2\sqrt{1+\sqrt{x}}}}{\frac{a}{2\sqrt{1+\sqrt{x}}}} = \frac{b}{a} = \frac{b}{r\lambda a}$$

⑩

$$\Rightarrow \lambda a = b \rightarrow r\lambda a = rb$$

$$\frac{b}{rb} = \frac{1}{r}$$

3

حاصل برابرت عدد صحیح نمی شود بنابراین نتیجه گیری به دو صورت ممکن است:

$$\left[\lambda \left(\frac{1}{r} \right)^r - \frac{1}{r} \right] = \left[1 - \frac{1}{r} \right] = \left[-\frac{1}{r} \right] = -1$$