

$$\lim_{x \rightarrow \infty} \frac{x^2 + 5}{x + 1} = \frac{\infty}{\infty} = \frac{9}{1} = 9$$

(س، ا، ص، د)

①

$\lambda \rightarrow \nu^+$

$$b) \lim_{x \rightarrow -1} \frac{r_{x+a}}{x+1} = \frac{r+a}{-1+1} = \frac{q}{0} = r$$

$$c) \frac{b^{x_{n+1} + \omega}}{x+1} = \frac{\varepsilon + \omega}{x} = \frac{q}{x} = p$$

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$$> \lim_{x \rightarrow 0} \frac{x + \sqrt{x}}{x^2} = \frac{\sqrt{0}}{0} \Rightarrow \infty$$

2) $\lim_{n \rightarrow r^-} f(n) = f \rightarrow f(r) - f = 4$

②

$$c) \lim_{n \rightarrow \infty} [x_{n-1}] \rightarrow [1] = 1$$

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

$$2) \left[\lim_{x \rightarrow r^+} f(x) \right]^- \rightarrow f(r) - \varepsilon = 1.$$

$$\text{cell) } \lim_{n \rightarrow \infty} \frac{r[n]+1}{r} \rightarrow \frac{r(\infty)+1}{r} = \frac{\infty}{r}$$

②

$$b) \lim_{n \rightarrow \infty} \left[\frac{\mu_{n+1}}{\mu} \right] = \frac{\mu(r)+1}{\mu} = \frac{1}{r} = \bar{\omega} \rightarrow [\bar{\omega}] = r$$

$$c) \left[\lim_{n \rightarrow \infty} \frac{r^{n+1}}{r} \right] \rightarrow \frac{10}{r} = 0$$

$$c) \left[\lim_{n \rightarrow \infty} \frac{r^{n+1}}{r} \right] \rightarrow \frac{1}{r} = \omega$$

د) $\frac{x-1}{(x-1)(x-2)} = \frac{1}{x-2}$ $\xrightarrow{1^+} \frac{1}{0^+} = +\infty$
 $\xrightarrow{1^-} \frac{1}{0^-} = -\infty$

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c) $\frac{x-2}{(x-1)^2} \Rightarrow \begin{matrix} \nearrow u^+ \\ \searrow u^- \end{matrix}$ $\frac{-1}{0^+} = -\infty$ $\frac{-1}{0^+} = -\infty$

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(ii) $\begin{bmatrix} -x & x \end{bmatrix} - \begin{bmatrix} ax & x \end{bmatrix}$

$n \times r$ $r \times r^T$ $r \times r^T$ $r \times r^T$

$\swarrow q$ $\searrow -q$ $\swarrow -r^+$ $\searrow -r^-$

$A + I\omega = 2P$ $q + Iq = 2\omega$

c) $x < -\frac{1}{x} \rightarrow x^2 > \frac{1}{14} \rightarrow -\frac{1}{x^2} > -14 \rightarrow \underline{-14}$

الف) $[\epsilon n^4 - 4n^2 + 4]$

$\vec{\sigma}^+ \rightarrow 1\pi^+ - 1\pi^+ = 0$
 $1\pi^+ 1\pi^+ = 0$
 $\vec{\sigma}^- \rightarrow [1\pi^- - 1\pi^-] = [\sigma^-] = \sigma^-$
 $[1\pi^- - 1\pi^-] = [\sigma^-] = \sigma^-$

$$\begin{pmatrix} \uparrow \\ \downarrow \end{pmatrix}$$

$$[K^{\uparrow} - K^{\downarrow} + K^{\uparrow} + K^{\downarrow}]$$

$$\begin{matrix} \swarrow & \searrow \\ 0^+ & 0^- \end{matrix}$$

$$\begin{matrix} 1/2(+1)^{\uparrow} - 1/2(+1)^{\downarrow} & 1/2(-1)^{\uparrow} - 1/2(-1)^{\downarrow} \\ = 0^+ & 0^+ \end{matrix}$$

$$\{ [K^{\uparrow} - K^{\downarrow} + K^{\uparrow} + K^{\downarrow}] = [\Sigma^{\uparrow}] = \Sigma$$

$$[K^{\uparrow}] = \Sigma$$

$$\begin{aligned} \text{ex) } \frac{(n-r)(n^2+r^2n+2)}{(n-r)(n+r)} &\xrightarrow{r^+} \frac{(n-r)(n^2+r^2n+2)}{(n-r)(n+r)} = \frac{14}{2} = 7 \\ &\xrightarrow{r^-} \frac{-(n-r)(n^2+r^2n+2)}{(n-r)(n+r)} = -14 \end{aligned}$$

4) $\frac{|\sin x|}{\sin x}$ $\nearrow \pi^+ \rightarrow +\infty$
 $\searrow \pi^- \rightarrow -\infty$

(الف) $\sqrt{\cos x}$ $\rightarrow \frac{x}{\sqrt{x}} \rightarrow 0$
 $x \rightarrow \frac{x}{\sqrt{x}}$ $\left\{ \begin{array}{l} \frac{x}{\sqrt{x}} \rightarrow \text{تقریب ندان} \\ \frac{x}{\sqrt{x}} \end{array} \right.$

ب) $\sqrt{x - 2\sqrt{x}}$ $\begin{cases} \text{مثبت} \\ \text{منفرد} \end{cases}$

$$\frac{(-1)^0}{x^r(x-1)} = \frac{1}{-x^r} = -x^{-r}$$

$\psi) \rightarrow \pi = \tau^-$
 $\frac{1^-}{-1} = -1^+$
 $\int \tau^+$
 $\frac{0^+}{-1} = 0^-$