

10/12

☆ 2. انقضية

Subject: _____

Date: / /

$$f(x) = r \left[\frac{x-r}{r} \right] + a \left[\frac{x+r}{r} \right] \xrightarrow{x \rightarrow -r} \lim_{x \rightarrow -r} r \left[\frac{x-r}{r} \right] + a \left[\frac{x+r}{r} \right] = r \quad (1)$$

$$\lim_{x \rightarrow r^+} r \left[\frac{x-r}{r} \right] + a \left[\frac{x+r}{r} \right] = r \left[\frac{r^-}{r} \right] + a \left[\frac{0^+}{r} \right] = r + a \times 0 = r \quad \star$$

$$\lim_{x \rightarrow -r^-} r \left[\frac{x-r}{r} \right] + a \left[\frac{x+r}{r} \right] = r \left[\frac{r^+}{r} \right] + a \left[\frac{0^-}{r} \right] = r + (-a) = r - a \rightarrow a = r$$

$$\left[\frac{a}{r} \right] \rightarrow \left[\frac{r}{r} \right] = 0 \quad \checkmark$$

$$\lim_{x \rightarrow \frac{\pi}{4}^-} [x \sin x - 1] = \left[x \times \frac{1}{r} - 1 \right] = [1 - 1] = [0] = -1 \quad (2)$$

$$\lim_{x \rightarrow -\frac{1}{r}} [1/x^2 - x] \rightarrow [x(1/x^2 - 1)] \xrightarrow{x = -\frac{1}{r}} \left[-\frac{1}{r} \left(1 \times \frac{1}{\frac{1}{r}} - 1 \right) \right] = \left[-\frac{1}{r} \right] = -1 \quad (3)$$

$$\lim_{x \rightarrow -\frac{1}{r}} \frac{\log x - 2 + \left[\frac{r}{x^2} \right]}{-14x - \left[\frac{-r}{x^2} \right]} = \frac{-\log x - 2 + \left[\frac{r}{\frac{1}{r}} \right]}{-14x - \left[\frac{-r}{\frac{1}{r}} \right]} = \frac{-\log x - 2 + [1r]}{-14x - [-r]} = \frac{-\log x - 2 + 11}{-14x + 11} = \frac{-\log x + 9}{-14x + 11} = \frac{+2+9}{-14+11} = \frac{11}{-3} = -\infty \quad (4)$$

$$\lim_{x \rightarrow 1^+} \frac{\sin^2 x}{[x] + \cos x} = \frac{\sin^2 x}{1 + \cos x} = \frac{(1 + \cos x)(1 - \cos x)}{1 + \cos x} = 1 - \cos x \rightarrow 0$$

$$1 - \cos x = 1 - (-1) = 2 \quad \checkmark$$

PARAMOUNT

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$$\lim_{x \rightarrow -1} \frac{\sqrt[3]{x+1} - \sqrt[3]{x+2}}{1 + \sqrt[3]{x}} = \frac{1x+1 - 1x-2}{1+x} \times \frac{(1 + (\sqrt[3]{x})^2 - \sqrt[3]{x})}{\sqrt[3]{x+1} + \sqrt[3]{x+2}} =$$

(4)

$$\frac{-x-1}{x+1} \times \frac{(1 + (\sqrt[3]{x})^2 - \sqrt[3]{x})}{\sqrt[3]{x+1} + \sqrt[3]{x+2}} = -1 \times \frac{1+1+1}{1+1+1} = \frac{-3}{3} = -1$$

⑤

$$\lim_{n \rightarrow 1} \frac{2n - \sqrt{n} + a}{2n - \sqrt{n+1}} \rightarrow \lim_{n \rightarrow 1} \frac{(\sqrt{n} - 1)(2\sqrt{n} - a)}{2n - \sqrt{n+1}} \times \frac{2\sqrt{n}}{2\sqrt{n}} = \lim_{n \rightarrow 1} \frac{2(\sqrt{n} - 1)(2\sqrt{n} - a)}{2n^2 - \sqrt{n+1} - 2}$$

$$\lim_{n \rightarrow 1} \frac{(\sqrt{n} - 1)(2\sqrt{n} - a) \times \sqrt{n+1}}{(n-1)(2n+1)} = \lim_{n \rightarrow 1} \frac{(n-1)(2\sqrt{n} - a) \times \sqrt{n+1}}{(n-1)(2n+1) \times \sqrt{n+1}} = \frac{-4}{a}$$

$$\lim_{x \rightarrow \infty} \frac{a + \sqrt{bx+c}}{x} = \frac{a^+ - bx - c}{x(a - \sqrt{bx+c})} \Rightarrow ar = c \quad (A)$$

$$\frac{-bx}{x(a - \sqrt{bx+c})} = \frac{-b}{a - |a|} \Rightarrow \frac{-b}{ra} = \frac{1}{\varepsilon} \rightarrow \frac{b}{a} = -\frac{1}{r} \rightarrow rb = -a \quad (B)$$

$\rightarrow a < 0$ more

$$\frac{ab}{c} \Rightarrow a \times \frac{-a}{r} = \frac{-ar}{rar} = -\frac{1}{r}$$

$$\lim_{n \rightarrow -r\lambda} \frac{\epsilon + k \left[\frac{n}{\lambda} \right]}{\sin n} = +\infty \rightarrow \lim_{n \rightarrow -r\lambda^+} \frac{\epsilon + k \left[\frac{-r\lambda^+}{\lambda} \right]}{\sin -r\lambda} = \frac{\epsilon - rk}{0^+} = +\infty \quad (4)$$

$$\lim_{n \rightarrow -r\lambda^-} \frac{\epsilon + k \left[\frac{-r\lambda^-}{\lambda} \right]}{\sin -r\lambda} = \frac{\epsilon - rk}{0^-} = +\infty$$

$$\hookrightarrow \epsilon - rk < 0 \rightarrow k > \frac{\epsilon}{r} \quad (5)$$

$$D, (5) \Rightarrow \frac{\epsilon}{r} < k < r \rightarrow -r < -k < -\frac{\epsilon}{r} \rightarrow [-k] = -r$$

10

$$\lim_{x \rightarrow 1} \frac{b\sqrt{1+\sqrt{x}} - 2b}{ax-b} = \frac{b^2(1+\sqrt{x}) - \varepsilon b^2}{ax-b(b\sqrt{1+\sqrt{x}} + 2b)} = \frac{b^2(-1+\sqrt{x})}{(ax-b)(b)(\sqrt{1+\sqrt{x}}+2)}$$

$$b^2(x-1)$$

$$\frac{b^2(x-1)}{(ax-b)(b)(\sqrt{1+\sqrt{x}}+2)((\sqrt{x})^2 + \varepsilon + \sqrt{x})} = \frac{4\varepsilon}{1(1)(1)} = \frac{1}{4}$$

$$a=1, b=1$$