

$$n^T(ax+b) = (x-t)^T \rightarrow n^T(-tx+t) \rightarrow a = -t, b = t \rightarrow \text{OK}$$

$$\rightarrow (n - \sqrt{c})^r = n^r - r \sqrt{c} n^{r-1} + \dots \Rightarrow a = -\sqrt{c} \quad b = \sqrt{12}$$

$$\lim_{n \rightarrow \left(\frac{1}{\sqrt{n}}\right)^+} \frac{\{-n\} + a}{\left|\frac{\sqrt{n}}{a} \operatorname{Re} n\right| + a} = -\infty = \frac{-1 + a}{\left|\frac{1}{a}\right| + a} = -\infty \rightarrow \text{r}$$

$$\left| \frac{1}{c} + a \right| + a = 1 \rightarrow \frac{1}{c} + a = -a \rightarrow a = -\frac{1}{4} - \{a\} = -1$$

$$\frac{1}{2r} \rightarrow \frac{-1}{2r} \rightarrow \left[\frac{-1}{2r} \right] = -4$$

$$\lim_{x \rightarrow (-\frac{1}{p})^+} = \frac{15x+9}{x^2x+11} = \lim_{x \rightarrow (-\frac{1}{p})^+} \frac{-1+9}{0^+} = \frac{1}{0^+} = +\infty$$

$$\lim_{x \rightarrow r^+} \frac{a^x - f}{x^u - [a^u]} = \lim_{x \rightarrow r^+} \frac{a^x - f}{x^u - 1} \rightarrow \lim_{x \rightarrow r^+} \frac{(x-r)(a+r)}{(x-r)(a^r + ra + r^2)} = \lim_{x \rightarrow r^+} \frac{a+r}{a^r + ra + r^2} = \frac{f}{1r} = \frac{1}{r}$$

$$\lim_{x \rightarrow -1} \frac{x^2 + \log x + 1}{1 + 4\sqrt{x}} = \lim_{x \rightarrow -1} \frac{(x+1)(x+1)}{4(1+\sqrt{x})} \times \frac{\sqrt{x} + 1 - \sqrt{x}}{\sqrt{x} + 1 - \sqrt{x}} \rightarrow$$

$$\lim_{x \rightarrow -4} \frac{(x+1)(x+7) \times 17}{4(x+1)} \rightarrow \lim_{x \rightarrow -4} \frac{17(x+7)}{4} = 17 \times (-4) = -17$$

سوال ۷

$$\lim_{x \rightarrow 0^-} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1-\cos x}} \times \frac{\sqrt{1+x} + \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} \times \frac{\sqrt{1+\cos x}}{\sqrt{1+\cos x}} \rightarrow \lim_{x \rightarrow 0^-} \frac{1+x-1+x}{\sqrt{1-\cos^2 x}} \times \frac{\sqrt{1+\cos x}}{\sqrt{2}}$$

$$\lim_{x \rightarrow 0^-} \frac{f(x) \times \sqrt{2}}{|\sin x| \times \sqrt{2}} = \lim_{x \rightarrow 0^-} \frac{f(x) \times \sqrt{2}}{-\sqrt{2} \sin x} \xrightarrow{\text{نقشه‌نگی}} \lim_{x \rightarrow 0^-} \frac{x}{\sin x} \times \frac{\sqrt{2}}{-\sqrt{2}} = -2$$


سوال ۸: حد خارج صفر و حاصل حد عددی حقیقی و غیر صفر ← حد صورت نیز برابر صفر بوده

$$\lim_{x \rightarrow 0} K + \cos(\sqrt{x}) = 0 \rightarrow K + 1 = 0 \rightarrow K = -1$$

$$\lim_{x \rightarrow 0} \frac{-1 + \cos(\sqrt{x})}{-x^2} \xrightarrow{\text{هم‌ارز}} \lim_{x \rightarrow 0} \frac{-1 + 1 - \frac{(\sqrt{x})^2}{2}}{-x^2} = \lim_{x \rightarrow 0} \frac{-\frac{x}{2}}{-x^2} = \frac{a}{r} \rightarrow \frac{a}{r} = 3 \rightarrow a = 6$$

$$\frac{a}{K} = \frac{6}{-1} = -6$$

سوال ۹

$$\lim_{x \rightarrow \frac{1}{2}^+} \frac{x\sqrt{x} - \frac{1}{2}}{\sqrt{x} - \frac{1}{2} \sqrt{x + \frac{1}{2}}} + \frac{x\sqrt{x} - \frac{1}{2}}{\sqrt{x} - \frac{1}{2} \sqrt{x + \frac{1}{2}}} = \lim_{x \rightarrow \frac{1}{2}^+} \left(\frac{x}{\sqrt{x}} + \frac{x(\sqrt{x} - \sqrt{\frac{1}{2}})}{\sqrt{x} - \frac{1}{2} \sqrt{x + \frac{1}{2}}} \times \frac{\sqrt{x} + \sqrt{\frac{1}{2}}}{\sqrt{x} + \sqrt{\frac{1}{2}}} \right) \rightarrow$$

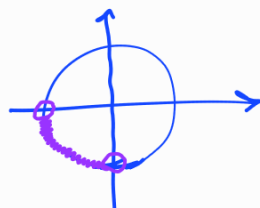
$$\lim_{x \rightarrow \frac{1}{2}^+} \left(\frac{x}{\sqrt{x}} + \frac{x(\sqrt{x} - \sqrt{\frac{1}{2}})}{(\sqrt{x} - \frac{1}{2} \sqrt{x + \frac{1}{2}})(\sqrt{x} + \sqrt{\frac{1}{2}})} \right) = \lim_{x \rightarrow \frac{1}{2}^+} \left(\frac{x}{\sqrt{x}} + \frac{x(\sqrt{x} - \sqrt{\frac{1}{2}})}{-(\sqrt{x} + \sqrt{\frac{1}{2}})(\sqrt{x} + \sqrt{\frac{1}{2}})} \right) = \lim_{x \rightarrow \frac{1}{2}^+} \frac{x}{\sqrt{x}} + 0$$

$$\rightarrow \frac{\sqrt{x}}{\sqrt{x}} = \sqrt{\frac{x}{x}} = \sqrt{\frac{1}{2}}$$

سوال ۱۰

$$\begin{cases} \lim_{x \rightarrow (-1)^+} \frac{1 - K[x]}{x^2 - 1} = \lim_{x \rightarrow (-1)^+} \frac{1 - K(-1)}{0^-} = \frac{1+K}{0^-} = -\infty \rightarrow 1+K > 0 \rightarrow K > -1 \quad (I) \\ \lim_{x \rightarrow (-1)^-} \frac{1 - K[x]}{x^2 - 1} = \lim_{x \rightarrow (-1)^-} \frac{1 - K(-1)}{0^+} = \frac{1+K}{0^+} = -\infty \rightarrow 1+K < 0 \rightarrow K < -\frac{1}{2} \quad (II) \end{cases}$$

$$(I) \cap (II) \rightarrow -1 < K < -\frac{1}{2} \rightarrow \begin{cases} -\pi < K\pi < -\frac{\pi}{2} \\ -1 < \cos K\pi < 0 \end{cases}$$



$$\lim_{x \rightarrow 0} \frac{f(x)}{g(x)}$$