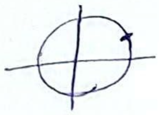
آرمین نوری

$2^+ \longrightarrow 2\left[\frac{4^-}{2}\right] + a\left[\frac{0^+}{3}\right] = 2\times 1 = 2$ -۱

$2^- \longrightarrow 2\left[\frac{4^+}{2}\right] + a\left[\frac{0^-}{3}\right] = 4 - a \Rightarrow 4 - a = 2 \rightarrow a = 2 \Rightarrow \left[\frac{2}{3}\right] = 0$

$\lim_{x\to \frac{\pi}{6}^-}\left[2\sin x - 1\right] \qquad \sin\frac{\pi}{6}^- = \frac{1}{2}^- \xrightarrow{\text{مثلا}} \frac{1}{3} \qquad \left[\frac{2}{3} - 1\right] = -1$ -۲



$\lim_{x\to -\frac{1}{2}}\left[8x^3 - x\right] \longrightarrow \left[-1 + \frac{1}{2}\right] = -1$ -۳

$\lim_{x\to(-\frac{1}{2})^-} \frac{10x - 5 + \left[\frac{3}{x^2}\right]}{16x - \left[-\frac{2}{x^2}\right]}$ -۴

$x < -\frac{1}{2} \rightarrow \frac{1}{x} > -2 \rightarrow \frac{1}{x^2} < 4 \rightarrow \frac{3}{x^2} < 12$

$x < -\frac{1}{2} \rightarrow \frac{1}{x} > -2 \rightarrow \frac{1}{x^2} < 4 \rightarrow \frac{-2}{x^2} > -8$

$\frac{10x - 5 + 11}{16x + 8} = \frac{10x + 6}{16x + 8} = \frac{1}{0^-} = -\infty$

$\lim_{x\to 1^+} \frac{\sin^2 \pi x}{[x] + \cos\pi x} \longrightarrow \frac{\sin^2\pi x}{1 + \cos\pi x} = \frac{1 - \cos^2\pi x}{1 + \cos\pi x} = \frac{(1-\cos\pi x)(1+\cos\pi x)}{1 + \cos\pi x} = 1 - \cos\pi x = 2$ -۵

$\lim_{x\to 1} \frac{\sqrt{2x+3} - \sqrt{3x+4}}{1 + \sqrt[3]{x}} \times \frac{\text{مزدوج ص}}{\text{مزدوج ص}} \times \frac{\text{قبل مخرج}}{\text{قبل مخرج}} = \frac{3(2x + 3 - 3x - 4)}{2(1 + x)} = \frac{3(-x-1)}{2(1+x)} = \frac{-3}{2}$ -۶

$\lim_{x\to 1} \frac{2x - 7\sqrt{x} + 5}{2x - \sqrt{3x+1}} \times \frac{2x + \sqrt{3x+1}}{2x + \sqrt{3x+1}} = \frac{4(2x - 7\sqrt{x} + 5)}{4x^2 - 3x - 1} = \frac{4\times 2(\sqrt{x} - 1)(\sqrt{x} - \frac{5}{2})}{4(x-1)(x + \frac{1}{4})}$ -۷

$\frac{2(\cancel{\sqrt{x} - 1})(\sqrt{x} - \frac{5}{2})}{(\cancel{\sqrt{x} - 1})(\sqrt{x} + 1)(x + \frac{1}{4})} = \frac{2(\sqrt{x} - \frac{5}{2})}{(\sqrt{x} + 1)(x + \frac{1}{4})} = \frac{2\times -\frac{3}{2}}{2\times\frac{5}{4}} = \frac{-\frac{3}{2}}{\frac{5}{4}} = \frac{-6}{5}$

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۸-

$$\lim_{x\to 0}\frac{a+\sqrt{bx+c}}{x}\xrightarrow{\text{هوپیتال}}\frac{b}{2\sqrt{bx+c}}=\frac{b}{2\sqrt{c}}=\frac{1}{4}\qquad 4b=2\sqrt{c}$$

$$2b=\sqrt{c}\to 4b^2=c\qquad a+\sqrt{bx+c}=0\to a+\sqrt{c}=0\qquad a=-\sqrt{c}=-2b$$

$$\frac{ab}{c}=\frac{-2b\times b}{4b^2}=-\frac{1}{2}$$

۹-

$$\lim_{x\to -2\pi}\frac{4+K\left[\frac{x}{\pi}\right]}{\sin x}\quad -2\pi^+\longrightarrow\frac{4+K[-2^+]}{0^+}=\frac{4-2K}{0^+}=+\infty\ .\quad 4-2K>0$$

$$-2\pi^-\longrightarrow\frac{4+K[-2^-]}{0^-}=\frac{4-3K}{0^-}=+\infty\qquad 4-3K<0$$

$$\left.\begin{array}{l}2K<4\to K<2\\ 3K>4\to K>\frac{4}{3}\end{array}\right\}\Longrightarrow\frac{4}{3}<K<2\to-\frac{4}{3}>-K>-2\to[-K]=-2$$

۱۰-

$$\lim_{x\to 8}\frac{b\sqrt{2+\sqrt[3]{x}}-2b}{ax-b}\times\frac{\text{مزدوج}}{\text{مزدوج}}=\frac{b^2(2+\sqrt[3]{x})-4b^2}{4b(ax-b)}=\frac{b^2(2+\sqrt[3]{x}-4)}{4b(ax-b)}$$

$$\text{مزدوج}\to 4b$$

$$\frac{b(\sqrt[3]{x}-2)}{4(ax-b)}\xrightarrow{\text{هوپیتال}}\frac{\frac{b}{3\sqrt[3]{x^2}}}{\frac{b}{2}}=\frac{2}{3\times 4}=\frac{1}{6}$$

$$8a-b=0\to 8a=b$$

$$4a=\frac{b}{2}$$