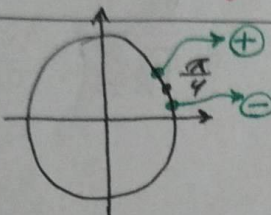


$$\left\{ \begin{array}{l} -2^+ = -1/9 \rightarrow 2 \left[\frac{2+1/9}{2} \right] + q \left[\frac{-1/9+2}{3} \right] = 2 \\ -2^- = -2/1 \rightarrow 2 \left[\frac{2+2/1}{2} \right] + q \left[\frac{-2/1+2}{3} \right] = 2 - q \end{array} \right\} \Rightarrow 2 = 2 - q \rightarrow q = 0$$

خواسته سوال $= \left[\frac{2}{3} \right] = 0$ ✓

$\lim_{x \rightarrow (\frac{\pi}{4})^-} [2 \sin x - 1] =$  طبق شکل رو بر اگر میل کنه به $\frac{\pi}{4}$ حاصل از $\frac{1}{2}$ کو چک می شه.

$$\left[2 \left(\frac{1}{2} \right)^- - 1 \right] = [1^- - 1] = [0^-] = -1 \quad \checkmark$$

$y = (x(1-x^2-1)) \rightarrow \frac{x}{y} \left| \begin{array}{ccc} \frac{-1}{\sqrt{x}} & 0 & \frac{+1}{\sqrt{x}} \\ - & + & - & + \end{array} \right.$ اگر $\frac{1}{\sqrt{x}}$ رابطه تابع به هم چون تابع ما پیوسته بوده پس کمه و بیشتر برای آن فرقی نداره

$\left[1 \left(\frac{-1}{\sqrt{x}} \right) + \frac{1}{\sqrt{x}} \right] = \left[\frac{-1}{\sqrt{x}} \right] = -1 \quad \checkmark$

$$\begin{aligned} x < \frac{-1}{\sqrt{x}} &\xrightarrow{\text{توان ۲}} x^2 > \frac{1}{x} \xrightarrow{\text{مقلوب}} \frac{1}{x^2} < x \xrightarrow{x^3} \frac{3}{x^2} < 12 \xrightarrow{[]} \left[\frac{3}{x^2} \right] = 11 \\ x < \frac{-1}{\sqrt{x}} &\xrightarrow{\text{توان ۲}} x^2 > \frac{1}{x} \xrightarrow{\text{مقلوب}} \frac{1}{x^2} < x \xrightarrow{x^{-2}} \frac{-2}{x^2} > -1 \xrightarrow{[]} \left[\frac{-2}{x^2} \right] = -1 \end{aligned}$$

$\lim_{x \rightarrow \frac{1}{4}^-} \frac{\log x + 4}{14x + 1} = \frac{1}{0^-} = -\infty \quad \checkmark$

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

$\hookrightarrow [1^+] = 1$

$$\lim_{x \rightarrow 1^+} \frac{1 - \cos(\pi x)}{1} = 1 - (-1) = 2 \quad \checkmark$$

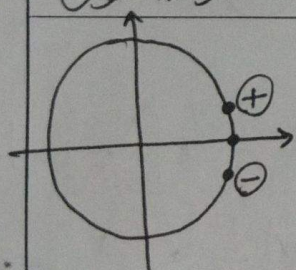
$$\lim_{x \rightarrow -1} \frac{\sqrt{2x+3} - \sqrt{3x+5}}{1 + \sqrt{x}} \xrightarrow{\text{Hop}} \frac{\frac{2}{2\sqrt{2x+3}} - \frac{3}{2\sqrt{3x+5}}}{\frac{1}{2\sqrt{x}}} = \frac{1 - \frac{3}{2}}{\frac{1}{2}} = \frac{-\frac{1}{2}}{\frac{1}{2}} = \boxed{-\frac{1}{2}}$$

$$\lim_{x \rightarrow 1} \frac{2x - \sqrt{3x+5}}{2x - \sqrt{3x+1}} \xrightarrow{\text{Hop}} \frac{2 - \frac{1}{2\sqrt{x}}}{2 - \frac{3}{2\sqrt{3x+1}}} = \frac{2 - \frac{1}{2}}{2 - \frac{3}{2}} = \frac{\frac{3}{2}}{\frac{1}{2}} = \boxed{\frac{3}{1}} = 3$$

$$\lim_{x \rightarrow 0} \frac{a + \sqrt{bx+c}}{x} \xrightarrow{\text{Hop}} \frac{b}{2\sqrt{bx+c}} = \frac{1}{\varepsilon} \rightarrow c = \varepsilon b^2$$

$$\frac{a + \sqrt{bx + \varepsilon b^2}}{x} = \frac{1}{\varepsilon} \rightarrow a + \sqrt{bx + \varepsilon b^2} = x \xrightarrow{x=0} a + \sqrt{\varepsilon b^2} = 0 \rightarrow a + b\sqrt{\varepsilon} = 0 \rightarrow a = -b\sqrt{\varepsilon}$$

خوابه سوال: $\frac{ab}{c} = \frac{-b^2}{\varepsilon b^2} = \boxed{-\frac{1}{\varepsilon}}$



$$\lim_{x \rightarrow 2\pi} \frac{\varepsilon + K \left[\frac{x}{\pi} \right]}{\sin x} \begin{cases} \oplus \frac{\varepsilon + K \left[\frac{2\pi^+}{\pi} \right]}{0^+} = \frac{\varepsilon + K \left[2^+ \right]}{0^+} = +\infty \\ \ominus \frac{\varepsilon + K \left[\frac{2\pi^-}{\pi} \right]}{0^-} = \frac{\varepsilon + K \left[2^- \right]}{0^-} = +\infty \end{cases}$$

سوال: $\varepsilon - 2K = -(\varepsilon - 3K) \rightarrow K = \frac{\varepsilon}{\Delta} \rightarrow \left[\frac{-\Delta}{\varepsilon} \right] = \boxed{-\frac{\Delta}{\varepsilon}}$

$$\lim_{x \rightarrow 1} \frac{b\sqrt{2+3x} - 2b}{ax - b} \xrightarrow{\text{Hop}} \frac{bx \left(\frac{3}{2\sqrt{2+3x}} \right)}{a} = \frac{bx \left(\frac{1}{\varepsilon} \right)}{a} = \frac{b}{\varepsilon a}$$

چون وقتی عدد را می دهیم حاصل صورت صفر می شود بنا بر اینخرج نیز باید صفر شود تا جواب نهایی غیر صفر باشد.

$$\Delta a - b = 0 \rightarrow b = \frac{\Delta a}{1} \quad \textcircled{\text{II}}$$

$$\textcircled{\text{I}} \text{ و } \textcircled{\text{II}} \rightarrow \frac{\Delta a}{\varepsilon \Delta a} = \boxed{\frac{1}{\varepsilon}}$$

$$\frac{b}{\varepsilon \Delta a} \quad \textcircled{\text{I}}$$