نام و نام خانوادگی ..... آرین بخشنده گان ..... پاسخنامه تشریحی تکلیف شماره ..۱۹.. کلاس ..... دوازدهم ... A

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$f(x) = 2\left[\frac{2-x}{2}\right] + a\left[\frac{x+2}{4}\right]$

$x \to 2^+ : \quad 2 + 0$

$x \to 2^- : \quad 4 - a$

$\xrightarrow{\text{حد دارد}} 4 - a = 2 \to a = 2 \to \left[\frac{a}{4}\right], \left[\frac{2}{4}\right] = 0$

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$$\lim_{x \to \left(\frac{\pi}{6}\right)^-} [2\underbrace{\sin x}_{\frac{1}{2}^-} - 1] = [1^- - 1] = [0^-] = -1$$

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

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از شکل تابع برای بیرون آوردن عبارت از براکت استفاده می‌کنیم.

$$\lim_{x \to \left(\frac{1}{2}\right)^-} \frac{10x - 5 + \left[\frac{3}{x^2}\right]}{16x - \left[-\frac{2}{x^2}\right]} = \frac{-10 + [12^-]\ 11}{-8^- - [-8^+]} = \frac{1}{-8^- + 8} = \frac{1}{0^-} = -\infty$$

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$$\lim_{x \to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \frac{\sin^2 \pi x}{\cos \pi x + 1} \underset{HoP}{\overset{0/0}{=}} \frac{2 \times \pi \cos \pi x \times \sin \pi x}{\pi(-\sin \pi x)}$$

$$= \lim_{x \to 1^+} -2\cos \pi x = +2$$

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$$\lim_{x \to -1} \frac{\sqrt{2x+3} - \sqrt{3x+4}}{1+\sqrt[3]{x}} \xrightarrow[\text{Hop}]{\frac{0}{0}} \frac{\frac{2}{2\sqrt{2x+3}} - \frac{3}{2\sqrt{3x+4}}}{\frac{1}{3\sqrt[3]{x^2}}}_{x \to -1}$$

$$= \frac{1-\frac{3}{2}}{\frac{1}{3}} = \frac{-\frac{1}{2}}{\frac{1}{3}} = \boxed{-\frac{3}{2}}$$

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$$\lim_{x \to 1} \frac{2x - 7\sqrt{x} + 5}{2x - \sqrt{3x+1}} \xrightarrow[\text{Hop}]{\frac{0}{0}} \frac{2 - \frac{7}{2\sqrt{x}}}{2 - \frac{3}{2\sqrt{3x+1}}}_{x \to 1} = \frac{2-\frac{7}{2}}{2-\frac{3}{4}}$$

$$\frac{-\frac{1}{\cancel{2}}}{\frac{5}{\cancel{4}2}} = \boxed{\frac{-2}{5}}$$

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$$\lim_{x \to 0} \frac{a+\sqrt{bx+c}}{x} = \frac{1}{4} \xrightarrow[\text{سوال } \frac{0}{0} \text{ بوده}]{\text{چون جواب عدد شده}} \xrightarrow[\text{Hop}]{\frac{0}{0}} \frac{\frac{b}{2\sqrt{bx+c}}}{1} = \frac{1}{4} \qquad \frac{ab}{c} = ?$$

$$4b = 2\sqrt{b\cancel{x}+c}_{x \to 0} \Rightarrow 2b = \sqrt{c} \to \boxed{c = 4b^2}$$

بنابراین $\frac{a+\sqrt{bx+c}}{x} \to = 0 \quad \overset{2b}{\cancel{\sqrt{c}}} + a = 0 \to \boxed{a = -2b} \quad \frac{-2b \cdot b}{4b^2} = \boxed{-\frac{1}{2}}$ جواب

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$$\lim_{x \to -2a} \frac{4 + k\left[\frac{x}{a}\right]}{\sin x} = +\infty \qquad x \begin{cases} \to (-2a)^+ = \frac{-2k+4}{0^+} \to -2k+4 > 0 \Rightarrow \boxed{k < 2} \\ \to (-2a)^- = \frac{-3k+4}{0^-} \to -3k+4 < 0 \\ \qquad 3k > 4 \to \boxed{k > \frac{4}{3}} \end{cases}$$

$$\to \frac{4}{3} < k < 2 \to -\frac{4}{3} > -k > -2 \to [-k] = \boxed{-2}$$

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$$\lim_{x \to 8} \frac{b\sqrt{2+\sqrt[3]{x}} - 2b}{ax - b} = \frac{2b - 2b}{8a - b} \neq 0 \to \underset{(1)}{8a = b}$$

$$\xrightarrow[\text{Hop}]{\frac{0}{0}} \frac{b \times \frac{1}{3\sqrt[3]{x^2}}}{2\sqrt{2+\sqrt[3]{x}}}_{x \to 8} = \frac{\frac{1}{12}}{4} = \frac{\frac{b}{48}}{a} = \frac{\cancel{b}\,8a}{48a} = \boxed{\frac{1}{6}}$$ جواب