

نام و نام خانوادگی: امیرعلی جعفری پاشا پاسخنامه تشریحی تکلیف شماره ۱۹... کلاس: دوازدهم ریاضی

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

$$a \rightarrow -x^+ \Rightarrow \frac{x-a}{x} \Rightarrow x^- \Rightarrow \left[\frac{x-a}{x} \right] = 1, \frac{x+x}{x} \Rightarrow 0^+ \Rightarrow \left[\frac{x+x}{x} \right] = 0$$

$$\Rightarrow f(x) = x + 0 = x$$

$$x \rightarrow -x^- \Rightarrow \frac{x-a}{x} \Rightarrow x^+ \Rightarrow \left[\frac{x-a}{x} \right] = x, \frac{x+x}{x} \Rightarrow 0^- \Rightarrow \left[\frac{x+x}{x} \right] = -1$$

$$\Rightarrow f(x) = x - a \Rightarrow x - a = x \Rightarrow a = x \quad \left[\frac{a}{x} \right] = 0$$

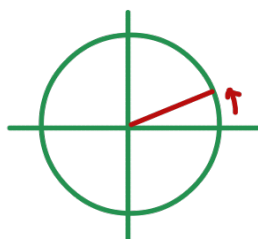
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$$\lim [x \sin x - 1]$$

$$x \rightarrow \left(\frac{\pi}{4} \right)^-$$

$$\sin x < 0, 5$$

$$x \sin x < 1 \Rightarrow x \sin x - 1 < 0 \Rightarrow [0^-] \Rightarrow -1 \quad \checkmark$$



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$$\lim [14x^3 - x]$$

$$x \rightarrow -\frac{1}{x}$$

مقدار داخل براکت عدد صحیح نشد در نتیجه نیاز به بررسی حد چپ و راست داریم

$$1 \left(-\frac{1}{x} \right) + \frac{1}{x} = -0, 5 \Rightarrow [-0, 5] = -1 \quad \checkmark$$

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$$\lim \frac{1 \cdot x - 5 + \left[\frac{x}{x^2} \right]}{14x - \left[-\frac{x}{x^2} \right]} \quad \textcircled{1}$$

$$x \rightarrow \left(-\frac{1}{x} \right)^- \quad \textcircled{2} \quad \frac{x}{x^2} \text{ if } x^2 = \frac{1}{x} \Rightarrow x \Rightarrow x^- \Rightarrow [x^-] = 11$$

$$\textcircled{2} \quad \frac{x}{x^2} \text{ if } x^2 = \frac{1}{x} \Rightarrow x \Rightarrow x^- \xrightarrow{\text{اعمال مثبتی}} [-x^+] = -11$$

$$\Rightarrow \frac{1 \cdot x + 6}{14x + 11} \Rightarrow \frac{1}{0^-} \Rightarrow -\infty \quad \checkmark$$

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

$$\textcircled{1} \quad x > 1 \Rightarrow [x] = 1 \Rightarrow \lim_{x \rightarrow 1^+} (1 - \cos x) \Rightarrow 1 + 1 = 2 \quad \checkmark$$

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$$\lim_{n \rightarrow -1} \frac{\sqrt{r^2 n + r} - \sqrt{r^2 n + r}}{1 + \sqrt{r^2 n}} \Rightarrow \text{if } n:1 \Rightarrow \frac{0}{0}$$

$$\xrightarrow{\text{hop}} \frac{\frac{1}{\sqrt{r^2 n + r}} - \frac{1}{\sqrt{r^2 n + r}}}{\frac{1}{r^2 \sqrt{r^2 n}}} \Rightarrow \frac{-\frac{1}{r}}{\frac{1}{r}} = -\frac{r}{r} \checkmark$$

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$$\lim_{n \rightarrow 1} \frac{r^2 n - \sqrt{r^2 n + 1}}{r^2 n - \sqrt{r^2 n + 1}} \Rightarrow \frac{0}{0}$$

$$\xrightarrow{\text{hop}} \frac{r - \frac{1}{r\sqrt{r^2 n + 1}}}{r - \frac{1}{r\sqrt{r^2 n + 1}}} \Rightarrow \frac{-\frac{r}{r}}{\frac{1}{r}} \Rightarrow \frac{-r}{1} = -1, r \checkmark$$

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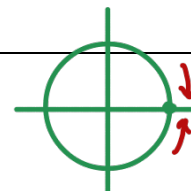
$$\lim_{n \rightarrow 0} \frac{a + \sqrt{bn + c}}{n} = \frac{1}{r} \Rightarrow \frac{0}{0} \quad \Rightarrow \frac{ab}{c} \cdot \frac{-\sqrt{c} \cdot b}{c} \cdot \frac{-b}{\sqrt{c}}$$

$$\Rightarrow a + \sqrt{b(0) + c} = 0 \Rightarrow a = -\sqrt{c}$$

$$\xrightarrow{\text{hop}} \frac{0 + \frac{b}{r\sqrt{bn + c}}}{1} = \frac{1}{r} \Rightarrow \frac{b}{r\sqrt{c}} = \frac{1}{r} \Rightarrow rb = \sqrt{c}$$

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$$\lim_{n \rightarrow -r\pi} \frac{f + k \left[\frac{n}{\pi} \right]}{\sin n} = +\infty \Rightarrow \text{علامت صفر = درجه یابی}$$



$$\begin{aligned} n \rightarrow -r\pi^+ &\Rightarrow \sin n \rightarrow 0^+ \rightarrow n > -r\pi \Rightarrow \frac{n}{\pi} > -r \Rightarrow \left[\frac{n}{\pi} \right] = -r \Rightarrow f - rk \\ n \rightarrow -r\pi^- &\Rightarrow \sin n \rightarrow 0^- \rightarrow n < -r\pi \Rightarrow \frac{n}{\pi} < -r \Rightarrow \left[\frac{n}{\pi} \right] = -r-1 \Rightarrow f - (r+1)k \\ f - rk > 0 &\Rightarrow f > rk \Rightarrow k < r \\ f - (r+1)k < 0 &\Rightarrow f < (r+1)k \Rightarrow k > \frac{f}{r+1} \Rightarrow \frac{f}{r+1} < k < r \Rightarrow -r < -k < -\frac{f}{r+1} \Rightarrow [-k] = -r \checkmark \end{aligned}$$

:-1, r

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$$la - b = 0 \rightarrow b = la$$

$$\lim_{x \rightarrow 1} \frac{la(\sqrt{r + \sqrt{x}} - r)}{ax - la} = \frac{la(\sqrt{r + \sqrt{x}} - r)}{ax - la} \times \frac{\sqrt{r + \sqrt{x}} + r}{\sqrt{r + \sqrt{x}} + r} =$$

$$\lim_{x \rightarrow 1} \frac{la(\sqrt{x} - r)}{a(x-1) \times r} \rightarrow \lim_{x \rightarrow 1} \frac{r(\sqrt{x} - r)}{(\sqrt{x} - r)(\sqrt{x} + r + r\sqrt{x})} = \frac{r}{r} = \frac{1}{r}$$

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