

نام و نام خانوادگی: دلا رام میرزا باقر پاسخنامه تشریحی تکلیف شماره ۱۸. کلاس: درازم دختر ۳

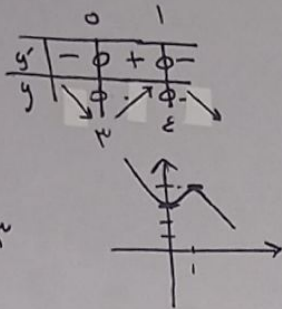
$\lim_{n \rightarrow 2} \frac{2n+2}{n+1} \xrightarrow{n=2} 3$	$\lim_{n \rightarrow 2^+} \frac{2n+2}{n+1} \xrightarrow{n=2, \frac{2+2}{3}=3}$	الف)
$\lim_{x \rightarrow 0} \frac{x+v}{[x^v]} \xrightarrow{0^+} \frac{v}{1} = v$ $\xrightarrow{0^-} \frac{v}{\emptyset} = v$ $v = \text{مطلوبه}$	$\lim_{n \rightarrow 2^-} \frac{2n+2}{n+1} \xrightarrow{n=2} 3$	ب)
$ج) \left[\lim_{n \rightarrow 3^-} \sum_{n=2} \right] = \left[\lim_{n \rightarrow 3^-} 1 \right] = 1$	$اند) \lim_{n \rightarrow 3^-} \left(\sum_{n=2} \right) - 2 = \lim_{n \rightarrow 3^-} \varepsilon \times 2 - 2 = 4$	۱)
$د) \left[\lim_{n \rightarrow 3^+} \sum_{n=2} \right] = \left[\lim_{n \rightarrow 3^+} 1 \right] = 1$	$ب) \lim_{n \rightarrow 3^-} \left[\sum_{n=2} \right] = \lim_{n \rightarrow 3^-} [1] = 9$	۲)
$ج) \left[\lim_{n \rightarrow 3^-} \frac{2n+1}{2} \right] = \left[\lim_{n \rightarrow 3^-} \frac{1}{2} \right] = 2$	$اند) \lim_{n \rightarrow 3^-} \frac{2[n]+1}{2} = \lim_{n \rightarrow 3^-} \frac{2 \times 2 + 1}{2} = \frac{5}{2}$	۳)
$د) \left[\lim_{n \rightarrow 3^+} \frac{2n+1}{2} \right] = \left[\lim_{n \rightarrow 3^+} \frac{1}{2} \right] = 2$	$ب) \lim_{n \rightarrow 3^-} \left[\frac{2n+1}{2} \right] = \lim_{n \rightarrow 3^-} \left[\frac{1}{2} \right] = 4$	
$ب) \lim_{n \rightarrow 3} \frac{n-2}{n^2-4n+4} \rightarrow \frac{1}{(n-2)^2} \Big _{n=3} = \frac{1}{1} = 1$ $\xrightarrow{3^+} \frac{-1}{0^+} = -\infty$ $\xrightarrow{3^-} \frac{-1}{0^+} = -\infty$ محدود	$الف) \lim_{n \rightarrow 1} \frac{n-2}{n^2-4n+4} \rightarrow \frac{1}{(n-1)(n-2)} \Big _{n=1} = \frac{1}{1-1} = \frac{1}{0}$ $\xrightarrow{1^+} \frac{-2}{0^-} = +\infty$ $\xrightarrow{1^-} \frac{-2}{0^+} = -\infty$ محدود	۴)
$ب) \lim_{n \rightarrow (-\frac{1}{2})^-} \left[\frac{-1}{n^2} \right]$ $n = -\frac{1}{2} \rightarrow \left[\frac{-1}{(-0.5)^2} \right] \rightarrow \left[\frac{-1}{0.25} \right] \rightarrow -4$	$اند) \lim_{n \rightarrow -3} [-2n] - [2n]$ $\xrightarrow{-3^+} [9] - [-6] = 15 - (-6) = 21$ $\xrightarrow{-3^-} [9] - [-6] = 9 - (-6) = 15$ محدود	۵)

$$ب) \lim_{x \rightarrow 0} [\varepsilon x^3 - 2x^2 + 3]$$

$$y' = 3\varepsilon x^2 - 4x$$

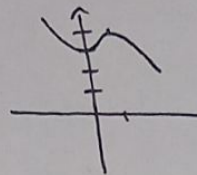
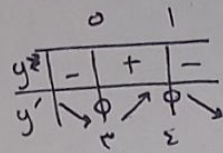
$$x \rightarrow 0 \rightarrow y = 3$$

$$\lim_{x \rightarrow 0} [\varepsilon x^3 - 2x^2 + 3] = 3$$



$$الف) \lim_{x \rightarrow 1} [\varepsilon x^3 - 2x^2 + 3]$$

$$x \rightarrow 1 \rightarrow \varepsilon \rightarrow [\varepsilon^-] \text{ و } \varepsilon^+$$



$$ب) \lim_{x \rightarrow \pi} \frac{|\sin x|}{\sin x}$$

$$x \rightarrow \pi^- \rightarrow \frac{\sin x}{\sin x} = \frac{\sin x}{x \sin x \cos x} = -\frac{1}{x}$$

$$x \rightarrow \pi^+ \rightarrow \frac{-\sin x}{\sin x} = \frac{-\sin x}{x \sin x \cos x} = \frac{1}{x}$$

محدود

$$الف) \lim_{x \rightarrow 2} \frac{|x^3 - 1|}{x^3 - 2}$$

$$x \rightarrow 2^+ \rightarrow \frac{x^3 - 1}{x^3 - 2} = \frac{(x-1)(x^2 + x + 1)}{(x-2)(x+2)} = \frac{1}{x}$$

$$x \rightarrow 2^- \rightarrow \frac{1 - x^3}{x^3 - 2} = \frac{-(x-1)(x^2 + x + 1)}{(x-2)(x+2)} = -\frac{1}{x}$$

محدود

$$\lim_{x \rightarrow 0} \sqrt{x - 2\sqrt{x}}$$

$$x \rightarrow 0^- \rightarrow \text{غیر تعریف}$$

محدود

$$x \rightarrow 0^+ \rightarrow 0$$

(ب)

$$الف) \lim_{x \rightarrow \frac{\pi}{2}} \sqrt{\cos x}$$

$$x \rightarrow \frac{\pi}{2}^+ \rightarrow \sqrt{\cos x} = 0$$

$$x \rightarrow \frac{\pi}{2}^- \rightarrow \cos x = 0$$

غیر تعریف

محدود

$$ب) \lim_{x \rightarrow 2} \frac{x^2 - [x^2]}{x - [x]}$$

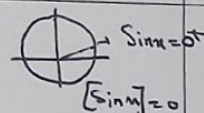
$$x \rightarrow 2^+ \rightarrow \frac{x^2 - 2}{x - 2} = \frac{(x-2)(x+2)}{x-2} = x+2$$

$$x \rightarrow 2^- \rightarrow \frac{x^2 - 1}{x - 1} = \frac{(x-1)(x+1)}{x-1} = x+1$$

محدود

$$الف) \lim_{x \rightarrow 0^+} \frac{(-1)^{[\sin x]}}{x^3 - x^2}$$

$$\rightarrow \frac{(-1)^0}{x^3 - x^2} = \frac{1}{x^2} = +\infty$$

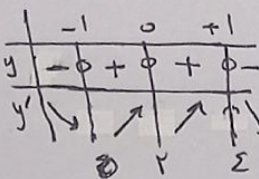
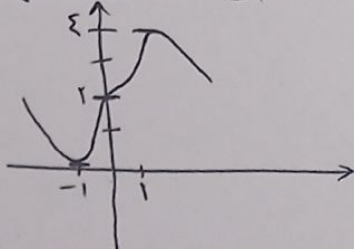


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$$الف) y = 2x^3 - 3x^2 + 2$$

$$y' = 6x^2 - 6x$$

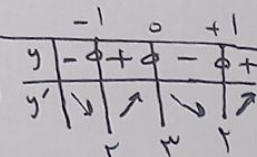
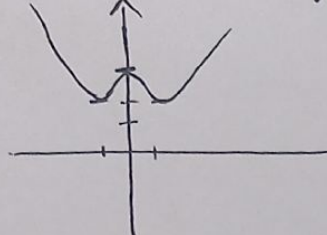
$$6x^2(1-x) = 0 \rightarrow x=0, x=1$$



$$ب) y = x^3 - 2x^2 + 2$$

$$y' = 3x^2 - 4x$$

$$3x(x-4/3) = 0 \rightarrow x=0, x=4/3$$



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