نام و نام خانوادگی .....تارا رضایی..... پاسخنامه تشریحی تکلیف شماره .....۱۸..... کلاس .....دهم دهم دختر A.....

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|---|---|
| ۱ | الف) ۳<br>ب) ۳<br>ج) ۳<br>د) $\frac{7}{0^+} = +\infty$ |
| ۲ | الف) $4(3-5)-3 = 6$<br>ب) $2(10-5) = 9$<br>ج) ۱۰<br>د) ۱۰ |
| ۳ | الف) $\frac{3(3-5)+1}{2} = \frac{7}{2}$<br>ب) $2(5-5) = 4$<br>ج) ۱۰<br>د) ۱۰ |
| ۴ | الف) $\lim_{x\to 1} \frac{\cancel{x-5}}{(\cancel{x-5})(x-1)} = \frac{1}{x-1}$ $\begin{cases} 1^+ & +\infty \\ 1^- & -\infty \end{cases}$ حد ندارد<br>ب) $\lim_{x\to 3} \frac{x-4}{(x-3)^2}$ $\begin{cases} 3^+ & \frac{-1}{0^+} = -\infty \\ 3^- & \frac{-1}{0^+} = -\infty \end{cases}$ |
| ۵ | الف) $\lim_{x\to -3} (-3\times 5) - (5\times 5)$ $\begin{cases} -3^+ & (9-5)-(-15+5) = 8-(-15) = 23 \\ -3^- & (9+5)-(-15-5) = 9-(-16) = 25 \end{cases}$ حد ندارد<br>ب) $\lim_{x\to(\frac{-1}{2})^-} \left(\frac{-1}{x^4}\right) = (-16-5) = -17$<br>$x < -\frac{1}{2} \Rightarrow x^4 < \frac{1}{16} \Rightarrow \frac{1}{x^4} > 16 \Rightarrow \frac{-1}{x^4} < -16$ |

**۶**

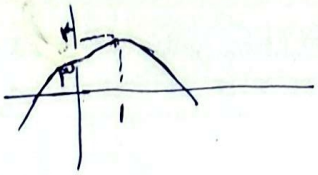
الف) $\lim\limits_{x\to 1}(4x^3-3x^4+3) = (4-3)=3$

$\hookrightarrow 12x^2-12x^3 \xrightarrow{x=1}$ شیب صفر

$y=3 \quad y=4$

$0 \quad 1$

$+\ \phi\ +\ \phi\ -$



ب) $\lim\limits_{x\to 0}(4x^3-3x^4+3) =$

$\hookrightarrow 12x^2-12x^3 \xrightarrow{x=0}$ شیب صفر

$0^+ \quad (4+3)=3$

$0^- \quad (4-3)=2$

**۷**

الف) $\lim\limits_{x\to 2}\dfrac{|x^3-8|}{x^2-4}$

$2^+ \quad \dfrac{\cancel{(x-2)}(x^2+2x+4)}{\cancel{(x-2)}(x+2)} = 3$

$2^- \quad \dfrac{-\cancel{(x-2)}(x^2+2x+4)}{\cancel{(x-2)}(x+2)} = -3$

غیرممکن

ب) $\lim\limits_{x\to \pi}\dfrac{|\sin x|}{\sin 2x}$

$\pi^+ \quad \dfrac{-\sin x}{\sin 2x} = \dfrac{-\cancel{\sin x}}{2\cancel{\sin x}\cos x} = \dfrac{+1}{2}$

$\pi^- \quad \dfrac{\sin x}{\sin 2x} = \dfrac{\cancel{\sin x}}{2\cancel{\sin x}\cos x} = \dfrac{-1}{2}$

غیرممکن

**۸**

الف) $\lim\limits_{x\to \frac{3\pi}{2}}\sqrt{\cos x}$

$\frac{3\pi}{2}^+ \quad 0$

$\frac{3\pi}{2}^- \quad$ ت ن

ب) $\lim\limits_{x\to 0}\sqrt{x-2\sqrt{x}}$

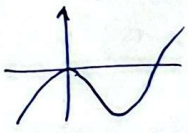
$0^+ \quad 0$

$0^- \quad$ ت ن

**۹**

الف) $\lim\limits_{x\to 0^+}\dfrac{(-1)^{[\sin x]}}{x^3-x^2} = \dfrac{(-1)^{[0+]}}{x^3-x^2} = \dfrac{1}{x^3-x^2} = \dfrac{1}{0^-} = -\infty$

$x^3-x^2 \Rightarrow$



ب) $\lim\limits_{x\to 2}\dfrac{x^2-[x+2]}{x-[x]}$

$2^+ \quad \dfrac{x^2-4}{x-2} = x+2 = 4$

$2^- \quad \dfrac{x^2-3}{x-1} = 1$

**۱۰**

الف) $5x^3-3x^5+2$

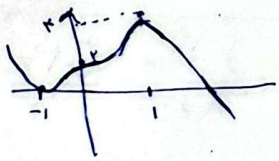
$\hookrightarrow y' = 15x^2-15x^4$

$y=0 \quad y=2 \quad y=4$

$-1 \quad 0 \quad 1$

$-\ \phi\ +\ \phi\ +\ \phi\ -$

$\searrow \ \nearrow \ \nearrow \ \searrow$

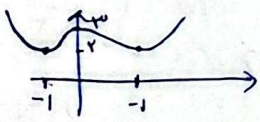


ب) $x^4-2x^2+3$

$\hookrightarrow y' = 4x^3-4x$

$y=2 \quad y=3 \quad y=2$

$-1 \quad 0 \quad 1$

$-\ \phi\ +\ \phi\ -\ \phi\ +$

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