شهرزاد شوشتری ۲۹ ۲۰

۱)

$\lim_{x\to 2^+} 4x-3 = 5$ ب $\lim_{x\to 2^-} 4x-3 = 5$ ۲

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۲)

$\lim_{x\to 2^+} 4[x]-3 \to = 5$ ب $\lim_{x\to 2^-} 4[x]-3 = 1$ ۲

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۳)

$\lim_{x\to 2^+} [4x-3] = [4x]-3 \to 5$ ب $\lim_{x\to 2^-} [4x-3] = 7-3 = 4 \quad 1$ ۲

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۴)

الف) $\left[\lim_{x\to 2^+} 4x-3\right] = 5$ $\left[\lim_{x\to 2^-} 4x-3\right] = 5$ ۲

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۵)

$\lim_{x\to 3} \frac{4x-3}{x-3} \begin{cases} 3^+ & \frac{9}{0^+} = +\infty \\ 3^- & \frac{9}{0^-} = -\infty \end{cases}$

$\lim_{x\to 3} \frac{4x-3}{(x-3)^2} \begin{cases} 3^+ & \frac{9}{0^+} = +\infty \\ 3^- & \frac{9}{0^+} = +\infty \end{cases}$ ۲

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۶)

$\lim_{x\to 3} \frac{4x-3}{\sqrt{x-3}} \to \begin{cases} 3^+ & \frac{9}{0^+} = +\infty \\ 3^- & \text{ن‌ت} \end{cases}$

$\lim_{x\to 3} \frac{4x-3}{\sqrt{x^2-4x+3}}$ $x^2-4x+3 = (x-1)(x-3)$

	1		3	
+		−		+

$\xrightarrow{3^+} \frac{9}{0^+} = +\infty$

$\xrightarrow{3^-} \frac{9}{\sqrt{0^-}}$ ن‌ت ۲

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۷)

$\lim_{x\to 3} \frac{4x-3}{x^2-7x+12}$ $x^2-7x+12 = (x-3)(x-4) \to$

	3		4	
+		−		+

$\xrightarrow{3^+} \frac{9}{0^-} = -\infty$

$\xrightarrow{3^-} \frac{9}{0^+} = +\infty$ ۲

ب) $\lim_{x\to 3} \frac{4x-3}{[x-3]} \to \frac{4x-3}{[x]-3} \to$ $3^+ : \frac{9}{0^+} = \infty$; $3^- : \frac{9}{-1} = -9$

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۸)

$\lim_{x\to 3} [3x]+[-2x] =$ $3^+ : 9 - 7 = 2$; $3^- : 8 - 6 = 2$

(۵)

$\lim_{x\to -4} [-4x]+[3x] =$ $-4^+ \,(-3{,}9) : [23{,}4] + [-11{,}8] = 23 - 12 = 11$; $-4^- \,(-4{,}1) : [24{,}4] + [-12{,}3] = 24 - 13 = 11$

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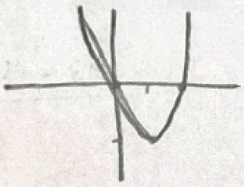
۹)

$\lim_{x\to 2} [x^2 - 4x] =$



$x^2 - 4x = x(x-4) \to$ ریشه‌ها ۰ و ۴

$\frac{-b}{2a} = \frac{4}{2} = 2 \to 4 - 8 = -4$

$\lim_{x\to 2} [x^2 - 4x] = -4$

(۵)

ب) $\lim_{x\to 3} [6x - x^2] \to \frac{-b}{2a} = \frac{-6}{-2} = 3 \to$ max دارد $\to 3\times 6 - 9 = 9$

$\lim_{x\to 3} [6x - x^2] = 8$

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۱۰)

$\lim_{x\to 2} \frac{|x-2|}{x^2-3x+2} = \frac{|x-2|}{(x-1)(x-2)}$; $2^+ : \frac{x-2}{(x-1)(x-2)} = \frac{1}{1} = 1$; $2^- : \frac{-(x-2)}{(x-1)(x-2)} = \frac{-1}{1} = -1$

(۵)

$x^2 - 1 :$ $- \; 1 \; +$ / $+ \; -1 \; - \; 1 \; +$

ب) $\lim_{x\to 1} \frac{x-[x]}{x^2-1} = \frac{0}{0}$; $1^+ : \frac{x-1}{x^2-1} = \frac{(x-1)}{(x+1)(x-1)} = \frac{1}{2}$ $\to x \xrightarrow{1^-} \frac{x}{x^2-1} = \frac{1}{0^-} = -\infty$