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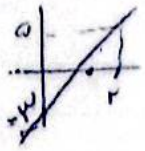
۱ (۲)

الف) $4x^+ - 3 = 0 \to \lim_{x \to 2^+} 4x - 3 = 0$ ✓ ب) $4x^- - 3 = 0 \to \lim_{x \to 2^-} 4x - 3 = 0$ ✓



۲ (۲)

الف) $\lim_{x \to 2^+} 4[x] - 3 \to 4[2^+] - 3 = 4 \times 2 - 3 = 5$ ✓

ب) $\lim_{x \to 2^-} 4[x] - 3 \to 4[2^-] - 3 = 4 \times 1 - 3 = 1$ ✓

۳ (۲)

الف) $x > 2 \to 4x > 8 \to 4x - 3 > 5 \to [4x - 3] = 5$ ✓

ب) $x < 2 \to 4x < 8 \to 4x - 3 < 5 \to [4x - 3] = 4$ ✓

۴ (۲)

الف) $[\lim 4x^2 - 3] = [\lim 5^-] = [5] = 5$ ✓

ب) $[\lim 4x^2 - 3] = [\lim 5^-] = [5] = 5$ ✓

۵ (۲)

الف) $\lim \frac{4x - 3}{x - 2} \Rightarrow \begin{cases} \frac{9^+}{0^+} = +\infty \\ \frac{9^-}{0^+} = -\infty \end{cases}$ ✓

ب) $\lim \frac{4x - 3}{(x-2)^2} \begin{cases} \frac{9^+}{0^+} = +\infty \\ \frac{9^+}{0^+} = +\infty \end{cases}$ ✓

۶ (۲)

الف) $\lim_{x\to 2^+} \frac{x^2-3}{\sqrt{x-2}}$ ($\frac{9}{\sqrt{0^+}} = +\infty$ ✓ , $\frac{9}{\sqrt{0^-}} = \not\exists$)

ب) $\lim_{x\to 2^+} \frac{x-2}{\sqrt{x^2-4x+4}}$ ($\frac{9}{\sqrt{0^+}} = +\infty$ ✓ , $\frac{9}{\sqrt{0^-}} = \not\exists$ ✓)

۷ (۲)

الف) $\lim_{x\to 2^+} \frac{x-3}{x^2-7x+12}$ ($\frac{9}{0^-} = -\infty$ ✓ , $\frac{9}{0^+} = +\infty$) — x: 3 , 4 ; $+$ $|$ $-$ $|$ $+$

ب) $\lim_{x\to 3^+} \frac{x-2}{[x-2]}$ ($\frac{9}{[0^+]} = \frac{9}{0} = \not\exists$ ✓ , $\frac{9}{[0^-]} = \frac{9}{-1} = -9$)

۸ (۲)

الف) $\lim_{x\to 3^+} [2x] + [-2x]$ ($x > 3 \Rightarrow 2x > 9 , -2x < -6 , [2x] = 9 , [-2x] = -7$; $[\quad] = 9-7 = 2$ ✓)

$x < 3 \Rightarrow 2x < 9 , -2x > -6 , [2x] = 8 , [-2x] = -6$; $8-6 = 2$ ✓

ب) $\lim_{x\to 3^+} [-2x] + [2x]$ ($x \to 3^+ \Rightarrow x > 3 \Rightarrow -2x < -6 \Rightarrow [-2x] = -7$; $2x > 12 \Rightarrow [2x] = 11$; $-7+11 = 4$ ✓)

($x < 3 \Rightarrow 2x < 6 \Rightarrow [2x] = 5$; $5-12 = -7$ ✓)

۹ (۲)

الف) $\lim [x^2 - 4x]$ ($3^{+0.01}$: $[-3.0401 - 8.04] = [-3.99] = -4$ ✓ ; 1.99 : $[-3.9601 - 7.96] = [-3.99] = -4$)

ب) $\lim [4x - x^2]$ ($3^{+0.01}$: $[12.0401 - 9.0601] = [8.9999] = 8$ ✓ ; 2.99 : $[11.9401 - 8.9401] = [8.9999] = 8$)

۱۰ (۲)

الف) $\lim_{x\to 2} \frac{|x-2|}{x^2-3x+2} = \frac{|x-2|}{(x-2)(x-1)}$ ($\frac{1}{x-1} = \frac{1}{1} = 1$ ✓ , $\frac{-1}{x-1} = -\frac{1}{1} = -1$)

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