

الف)  $\lim_{x \rightarrow 2^+} \varepsilon x - 3 = \textcircled{5}$

ب)  $\lim_{x \rightarrow 2^-} 4x - 3 = \textcircled{5}$

الف)  $\lim_{x \rightarrow 2^+} f[x] - 3 = f[2^+] - 3 = 4 \times 2 - 3 = \textcircled{5}$

ب)  $\lim_{x \rightarrow 2^-} f[x] - 3 = f[2^-] - 3 = 4 \times 1 - 3 = \textcircled{1}$

الف)  $\lim_{x \rightarrow 2^+} [1^+ - 3] = \textcircled{5}$

ب)  $\lim_{x \rightarrow 2^-} [1^- - 3] = \textcircled{4}$

الف)  $[\lim_{x \rightarrow 2^+} (x - 3)] = \textcircled{5}$

ب)  $[\lim_{x \rightarrow 2^-} (4x - 3)] = \textcircled{5}$

الف)  $\lim_{x \rightarrow 3} \frac{\varepsilon x - 3}{x - 3} = \text{حذف می شود}$

$\begin{cases} 3^+ \rightarrow \frac{(\varepsilon \times 3) - 3}{3^+ - 3} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{(\varepsilon \times 3) - 3}{3^- - 3} = \frac{9}{0^-} = -\infty \end{cases}$

ب)  $\lim_{x \rightarrow 3} \frac{\varepsilon x - 3}{(x - 3)^2} = \text{حذف می شود}$

$\begin{cases} 3^+ \rightarrow \frac{(\varepsilon \times 3) - 3}{(3^+ - 3)^2} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{(\varepsilon \times 3) - 3}{(3^- - 3)^2} = \frac{9}{0^+} = +\infty \end{cases}$

الف)  $\lim_{x \rightarrow 3} \frac{\varepsilon x - 3}{\sqrt{x - 3}} = \text{حذف می شود}$

$\begin{cases} 3^+ \rightarrow \frac{(\varepsilon \times 3) - 3}{\sqrt{3^+ - 3}} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{(\varepsilon \times 3) - 3}{\sqrt{3^- - 3}} = \text{تین} \end{cases}$

ب)  $\lim_{x \rightarrow 3} \frac{\varepsilon x - 3}{\sqrt{x^2 - \varepsilon x + 3}} = \text{حذف می شود}$

$\begin{cases} 3^+ \rightarrow \frac{(\varepsilon \times 3) - 3}{\sqrt{0^+}} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{(\varepsilon \times 3) - 3}{\sqrt{0^-}} = \text{تین} \end{cases}$

الف)  $\lim_{x \rightarrow 2} \frac{\sum x - 3}{x^2 - 7x + 12}$  - 7

نقطه  
 $\begin{cases} 2^+ \rightarrow \frac{(\sum x^2) - 3}{0^-} = \frac{9}{0^-} = -\infty \\ 2^- \rightarrow \frac{(\sum x^2) - 3}{0^+} = \frac{9}{0^+} = +\infty \end{cases}$  صندباد

ب)  $\lim_{x \rightarrow 2} \frac{\sum x - 3}{\lfloor x - 3 \rfloor}$

$\begin{cases} 2^+ \rightarrow \frac{(\sum x^2) - 3}{0} = \frac{9}{0} \text{ undefined} \\ x > 3 \rightarrow x - 3 > 0 \rightarrow \lfloor x - 3 \rfloor = 0 \\ 2^- \rightarrow \frac{(\sum x^2) - 3}{0} = \frac{9}{0} = -9 \\ x < 3 \rightarrow x - 3 < 0 \rightarrow \lfloor x - 3 \rfloor = -1 \end{cases}$  صندباد

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الف)  $\lim_{x \rightarrow 2} \lfloor 3x \rfloor + \lfloor 2x \rfloor$

$\begin{cases} 2^+ \rightarrow 9 + (-1) = 8 \\ x > 3 \rightarrow 3x > 9 \rightarrow \lfloor 3x \rfloor = 9 \\ x > 3 \rightarrow -2x < -6 \rightarrow \lfloor -2x \rfloor = -7 \\ 2^- \rightarrow 8 + (-4) = 4 \end{cases}$  صندباد

ب)  $\lim_{x \rightarrow -4} \lfloor -5x \rfloor + \lfloor 2x \rfloor$

$\begin{cases} (-4)^+ \rightarrow 20 + (-8) = 12 \\ x > -4 \rightarrow -5x < 20 \rightarrow \lfloor -5x \rfloor = 19 \\ x > -4 \rightarrow 2x < -8 \rightarrow \lfloor 2x \rfloor = -9 \\ (-4)^- \rightarrow 20 + (-12) = 8 \\ x < -4 \rightarrow -5x > 20 \rightarrow \lfloor -5x \rfloor = 20 \\ x < -4 \rightarrow 2x < -8 \rightarrow \lfloor 2x \rfloor = -9 \end{cases}$  صندباد

الف)  $\lim_{x \rightarrow 2} \lfloor x^2 - 5x \rfloor = \lfloor (-2)^+ \rfloor = -2$  صندباد

ب)  $\lim_{x \rightarrow 2} \lfloor -x^2 + 6x \rfloor = \lfloor 9^- \rfloor = 8$

در نقطه max یعنی صندباد

الف)  $\lim_{n \rightarrow 2} \frac{|n-2|}{x^2 - 3x + 2} = \frac{0}{0}$  - 10

نقطه  
 $\begin{cases} 2^+ \rightarrow \frac{(n-2)}{(n-2)(n-1)} = \frac{1}{n-1} = 1 \end{cases}$  صندباد

$\begin{cases} 2^- \rightarrow \frac{2-n}{(n-2)(n-1)} = \frac{-1}{n-1} = -1 \end{cases}$  صندباد

ب)  $\lim_{n \rightarrow 1} \frac{n - \lfloor n \rfloor}{x^2 - 1}$

$\begin{cases} 1^+ \rightarrow \frac{(n-1)}{(n-1)(n+1)} = \frac{1}{n+1} \\ \lfloor n \rfloor = 1 \\ 1^- \rightarrow \frac{x}{x^2 - 1} = \frac{1}{0^-} = -\infty \\ \lfloor n \rfloor = 0 \end{cases}$  صندباد