

الف) $\lim_{n \rightarrow 2^+} \varepsilon_{n-2} = \varepsilon_{1-2} = \textcircled{a}$ (۱)

ب) $\lim_{n \rightarrow 2^-} \varepsilon_{n-2} = \varepsilon_{1-2} = \textcircled{a}$

الف) $\lim_{n \rightarrow 2^+} \varepsilon[n] - 2 = \varepsilon[2^+] - 2 = 1 - 2 = \textcircled{a}$ (۲)

ب) $\lim_{n \rightarrow 2^-} \varepsilon[n] - 2 = \varepsilon[2^-] - 2 = 1 - 2 = \textcircled{1}$

الف) $\lim_{n \rightarrow 2^+} [\varepsilon_{n-2}] = \textcircled{a}$ $n > 2 \rightarrow \varepsilon_n > 1 \rightarrow \varepsilon_{n-2} > a$ (۳)

ب) $\lim_{n \rightarrow 2^-} [\varepsilon_{n-2}] = \textcircled{a}$ $n < 2 \rightarrow \varepsilon_n < 1 \rightarrow \varepsilon_{n-2} < a$

الف) $\left[\lim_{n \rightarrow 2^+} \varepsilon_{n-2} \right] = \textcircled{a}$ $\lim_{n \rightarrow 2^+} \varepsilon_{n-2} = a$ (۴)

ب) $\left[\lim_{n \rightarrow 2^-} \varepsilon_{n-2} \right] = \textcircled{a}$ $\lim_{n \rightarrow 2^-} \varepsilon_{n-2} = a$

الف) $\lim_{n \rightarrow c} \frac{\varepsilon_{n-2}}{n-2}$ (۵)

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - 2}{c^+ - 2} = \frac{9}{0^+} = +\infty$
 $\xrightarrow{c^-} \frac{(\varepsilon \times c) - 2}{c^- - 2} = \frac{9}{0^-} = -\infty$

حذفیات

ب) $\lim_{n \rightarrow c} \frac{\varepsilon_{n-2}}{(n-2)^2}$

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - 2}{(c^+ - 2)^2} = \frac{9}{(0^+)^2} = \frac{9}{0^+} = +\infty$
 $\xrightarrow{c^-} \frac{(\varepsilon \times c) - 2}{(c^- - 2)^2} = \frac{9}{(0^-)^2} = \frac{9}{0^+} = +\infty$

حذفیات

الف) $\lim_{n \rightarrow c} \frac{\varepsilon n - c}{\sqrt{n - c}}$ ⑥

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - c}{\sqrt{c^+ - c}} = \frac{9}{\sqrt{0^+}} = \frac{9}{0^+} = +\infty$
 $\xrightarrow{c^-} \frac{(\varepsilon \times c) - c}{\sqrt{c^- - c}} = \frac{9}{\sqrt{0^-}} \rightarrow \text{تن}$
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 فرجه زوج

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ب) $\lim_{n \rightarrow c} \frac{\varepsilon n - c}{\sqrt{n^2 - \varepsilon n + c}}$

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - c}{\sqrt{0^+}} = \frac{9}{0^+} = +\infty$
 $\xrightarrow{c^-} \frac{(\varepsilon \times c) - c}{\sqrt{0^-}} \Rightarrow \text{تن}$

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$n^2 - \varepsilon n + c = 0 \rightarrow (n - 1)(n - c) = 0$

$\rightarrow n = c$
 $\rightarrow n = 1$

$\frac{1}{+} \quad \frac{c}{-} \quad \frac{c}{+}$

الف) $\lim_{n \rightarrow c} \frac{\varepsilon n - c}{n^2 - 7n + 12}$ ⑦

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - c}{0^-} = \frac{9}{0^-} = -\infty$
 $\xrightarrow{c^-} \frac{(\varepsilon \times c) - c}{0^+} = \frac{9}{0^+} = +\infty$

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$n^2 - 7n + 12 = 0 \rightarrow (n - 3)(n - 4) = 0$

$\rightarrow n = 3$
 $\rightarrow n = 4$

$\frac{c}{+} \quad \frac{3}{-} \quad \frac{4}{+}$

ب) $\lim_{n \rightarrow c} \frac{\varepsilon n - c}{[n - c]}$

$\xrightarrow{c^+} \frac{(\varepsilon \times c) - c}{0} = \frac{9}{0} = \text{تن}$
 $n > c \rightarrow n - c > 0 \rightarrow [n - c] = 0$

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$\xrightarrow{c^-} \frac{(\varepsilon \times c) - c}{-1} = \frac{9}{-1} = -9$
 $n < c \rightarrow n - c < 0 \rightarrow [n - c] = -1$

الف) $\lim_{n \rightarrow c} [cn] + [-2n]$ $\xrightarrow{c^+} 9 + (-7) = \textcircled{2}$ (1)

$n > c \rightarrow cn > 9 \rightarrow [cn] = 9$

$n > c \rightarrow -2n < -7 \rightarrow [-2n] = -7$

$\xrightarrow{c^-} 1 + (-4) = \textcircled{2}$

$n < c \rightarrow cn < 9 \rightarrow [cn] = 1$

$n < c \rightarrow -2n > -4 \rightarrow [-2n] = -4$

$\Rightarrow \lim_{n \rightarrow c} [cn] + [-2n] = \textcircled{2}$

ب) $\lim_{n \rightarrow -4} [-\xi n] + [2n]$ $\xrightarrow{(-4)^+} 2c + (-12) = \textcircled{11}$

$n > -4 \rightarrow -\xi n < 2\xi \rightarrow [-\xi n] = 2\xi$

$n > -4 \rightarrow 2n > -12 \rightarrow [2n] = -12$

$\xrightarrow{(-4)^-} 2\xi + (-1c) = \textcircled{11}$

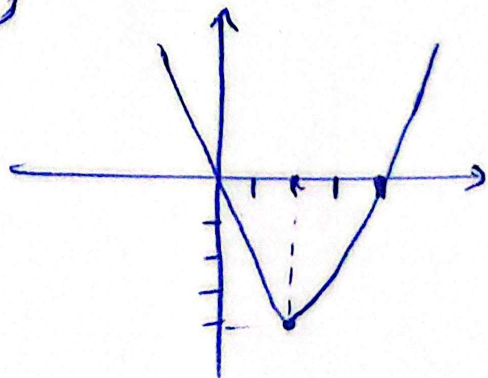
$n < -4 \rightarrow -\xi n > 2\xi \rightarrow [-\xi n] = 2\xi$

$n < -4 \rightarrow 2n < -12 \rightarrow [2n] = -12$

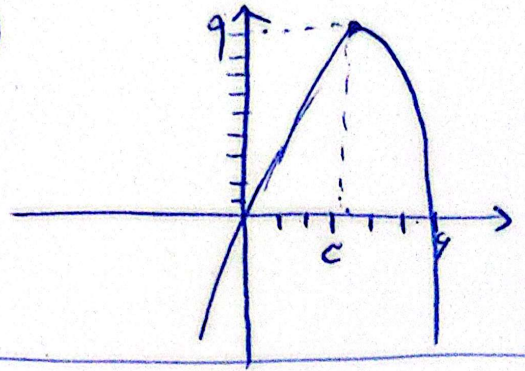
$\Rightarrow \lim_{n \rightarrow -4} [-\xi n] + [2n] = \textcircled{11}$

الف) $\lim_{n \rightarrow 2} [n^2 - \xi n] = [(-\xi)^+] = \textcircled{-\xi}$ (2)

$n = 2 \rightarrow \min$
تابع \rightarrow تنازلیت دو شاخه
کلیت



$$\hookrightarrow \lim_{x \rightarrow c} [4x - x^2] = [4c - c^2] = 16$$



$n = c \rightarrow$ نیاز به روش خاصی نداریم \rightarrow همان تابع

$$\text{الف) } \lim_{x \rightarrow 2} \frac{|x-2|}{x^2 - c + 2} = \frac{0}{0} \xrightarrow{x^+} \frac{x-2}{(x-2)(x-1)} = \frac{1}{x-1} = 1 \quad (10)$$

فصل اول

صورتدار

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

$$\hookrightarrow \lim_{x \rightarrow 1} \frac{x - [x]}{x^2 - 1} \xrightarrow{1^+} \frac{x - [1^+]}{(x-1)(x+1)} = \frac{x-1}{(x-1)(x+1)} = \frac{1}{1+1} = \frac{1}{2}$$

صورتدار

$$\xrightarrow{1^-} \frac{x - [1^-]}{x^2 - 1} = \frac{x}{x^2 - 1} = \frac{1}{0^-} = -\infty$$

$$x < 1 \rightarrow x^2 < 1 \rightarrow x^2 - 1 < 0$$