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$$\lim_{n \rightarrow r^+} f_{n-k} = a \quad \text{الف}$$

الف

$$\lim_{n \rightarrow r^-} f_{n-k} = a \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} f[n] - k = r - k = a \quad \text{الف}$$

\swarrow
 $r \Rightarrow [n] = [r^+] = r$

الف

$$\lim_{n \rightarrow r^-} f[n] - k = r - k = a \quad \text{ب}$$

\swarrow
 $r \Rightarrow [n] = [r^-] = r$

ب

$$\lim_{n \rightarrow r^+} [f_{n-k}] = a \quad \text{الف}$$

\swarrow
 $r \Rightarrow [f_{n-k}] = [a^+] = a$

الف

$$\lim_{n \rightarrow r^-} [f_{n-k}] \rightarrow a \quad \text{ب}$$

\swarrow
 $r \Rightarrow [f_{n-k}] = [a^-] = a$

ب

$$\left[\lim_{n \rightarrow r^+} f_{n-k} \right] = [a] = a \quad \text{الف}$$

الف

$$\left[\lim_{n \rightarrow r^-} f_{n-k} \right] = [a] = a \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{n-k} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{0^+} = +\infty \\ \xrightarrow{n \rightarrow r^-} \frac{0}{0^-} = -\infty \end{cases} \quad \text{الف}$$

الف

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{(n-k)^2} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{(0^+)^2} = \frac{0}{0^+} = +\infty \\ \xrightarrow{n \rightarrow r^-} \frac{0}{(0^-)^2} = \frac{0}{0^+} = +\infty \end{cases} \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{\sqrt{n-k}} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{\sqrt{0^+}} = \frac{0}{0^+} = +\infty \\ \xrightarrow{n \rightarrow r^-} \frac{0}{\sqrt{0^-}} = \frac{0}{0} = \text{C/C} \end{cases} \quad \text{الف}$$

الف

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{\sqrt{n^2 - k_n + k}} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{\sqrt{0^+}} = \frac{0}{0^+} = +\infty \\ \xrightarrow{n \rightarrow r^-} \frac{0}{\sqrt{0^-}} = \frac{0}{0} = -\infty \end{cases} \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{n^2 - k_n + k} = \lim_{n \rightarrow r^+} \frac{f_{n-k}}{(n-k)(n-k)} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{0^+} = -\infty \\ \xrightarrow{n \rightarrow r^-} \frac{0}{0^-} = +\infty \end{cases} \quad \text{الف}$$

الف

$$\lim_{n \rightarrow r^+} \frac{f_{n-k}}{[n-k]} = \frac{0}{0^+} \begin{cases} \xrightarrow{n \rightarrow r^+} \frac{0}{[0^+]} = \frac{0}{0^+} = \text{C/C} \\ \xrightarrow{n \rightarrow r^-} \frac{0}{[0^-]} = \frac{0}{-1} = -0 \end{cases} \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} [f_n] + [-f_n] \xrightarrow{n \rightarrow r^+} [9^+] + [(-9)^-] = 9 + (-9) = 0 \quad \text{الف}$$

\swarrow
 $r \Rightarrow [9^+] = 9$ \swarrow
 $r \Rightarrow [(-9)^-] = -9$

الف

$$\lim_{n \rightarrow r^+} [f_n] + [-f_n] \xrightarrow{n \rightarrow r^+} [9^-] + [(-9)^+] = 9 + (-9) = 0 \quad \text{ب}$$

ب

$$\lim_{n \rightarrow r^+} [-f_n] + [f_n] \xrightarrow{n \rightarrow r^+} [(-9)^+] + [9^-] = (-9) + 9 = 0$$

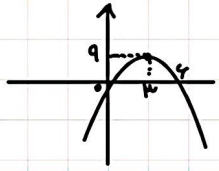
\swarrow
 $r \Rightarrow [(-9)^+] = -9$ \swarrow
 $r \Rightarrow [9^-] = 9$

$$\lim_{n \rightarrow r^+} [n^r - f_n] \xrightarrow{n \rightarrow r^+} [r^r - f_n] = [r^r - r^r] = 0$$

الف

الف

$$\lim_{n \rightarrow r} [4n - n^2]$$



تابع درجه ۲ دارد $\Rightarrow \lim_{n \rightarrow r} [4n - n^2] = [4r - r^2] = 4r - r^2$

(ب)

$$\lim_{n \rightarrow r} \frac{|n-r|}{n^2 - 4n + r} = \frac{0}{0} \text{ فرم } \rightarrow \text{نوع } \frac{0}{0} \rightarrow \begin{array}{l} n \rightarrow r^+ \rightarrow \frac{n-r}{(n-r)(n-1)} = \lim_{n \rightarrow r^+} \frac{1}{n-1} = \frac{1}{r} \\ n \rightarrow r^- \rightarrow \frac{-(n-r)}{(n-r)(n-1)} = \lim_{n \rightarrow r^-} \frac{-1}{n-1} = -\frac{1}{r} \end{array}$$

(الف - ۱۰)

(ب)

$$\lim_{n \rightarrow 1} \frac{n - [n]}{n^2 - 1} = \frac{0}{0} \text{ فرم } \rightarrow \text{نوع } \frac{0}{0} : \begin{array}{l} n \rightarrow 1^+ \rightarrow [n] = [1^+] = 1 \rightarrow \lim_{n \rightarrow 1^+} \frac{n-1}{(n-1)(n+1)} = \frac{1}{2} \\ n \rightarrow 1^- \rightarrow [n] = [1^-] = 0 \rightarrow \lim_{n \rightarrow 1^-} \frac{n}{n^2-1} = \frac{1}{0^-} = -\infty \end{array}$$