

$\lim_{n \rightarrow \infty} \frac{x_n + 0}{x_n + 1} = 1$  (الف)  $\lim_{n \rightarrow \infty} \frac{x_n + 0}{x_n + 1} = 1$   $\lim_{n \rightarrow \infty} \frac{x_n + 0}{x_n + 1} = 1$

٢. اثبت

$\lim_{n \rightarrow 0} \frac{x_n + 1}{[x_n]} = 1$  (ب)  $\lim_{n \rightarrow \infty} [x_n] = 1$   $\lim_{n \rightarrow \infty} [x_n] = 1$

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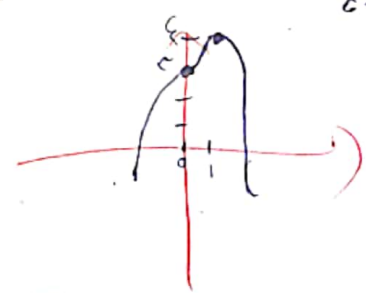
$\lim_{n \rightarrow 1} \frac{n - 0}{n^2 - 2n + 0} = -\infty$  (الف)  $\lim_{n \rightarrow 1} \frac{n - 0}{n^2 - 2n + 0} = -\infty$

$\lim_{n \rightarrow \infty} \frac{n - 3}{n^2 - 9n + 9} = -\infty$   $\lim_{n \rightarrow \infty} \frac{n - 3}{n^2 - 9n + 9} = -\infty$

$\lim_{n \rightarrow \infty} [x_n] - [y_n] = 1$  (الف)  $\lim_{n \rightarrow \infty} [x_n] - [y_n] = 1$

$\lim_{n \rightarrow (-\frac{1}{2})^-} \left[ \frac{-1}{x_n} \right] = [-1] = -1$  (ب)  $\lim_{n \rightarrow (-\frac{1}{2})^-} \left[ \frac{-1}{x_n} \right] = [-1] = -1$

$\lim_{n \rightarrow 1} [x_n^2 - x_n^2 + 1] = 1$  (الف)  $\lim_{n \rightarrow 1} [x_n^2 - x_n^2 + 1] = 1$



$\lim_{n \rightarrow 0} \dots$   $\lim_{n \rightarrow 0} \dots$

$$\text{الف) } \lim_{n \rightarrow 5} \frac{|n^5 - 1|}{n^5 - 6} = \frac{|n-1|(n^4 + 2n^3 + 3n^2 + 2n + 1)}{(n-5)(n+5)}$$

$$\frac{(n-1)(n^4 + 2n^3 + 3n^2 + 2n + 1)}{(n-5)(n+5)} = \frac{(5-1)(5^4 + 2 \cdot 5^3 + 3 \cdot 5^2 + 2 \cdot 5 + 1)}{(5-5)(5+5)} = -\frac{1}{5}$$

✓  
2  
2  
2

$$\text{ب) } \lim_{n \rightarrow \pi} \frac{|\sin n|}{\sin n}$$

$$\frac{-\sin}{\sin \cos} \rightarrow \frac{1}{\frac{1}{2}}$$

$$\frac{\sin}{\sin \cos} \rightarrow \frac{1}{-\frac{1}{2}}$$

✓  
1/2  
1/2

$$\text{الف) } \lim_{n \rightarrow \frac{\pi}{2}} \sqrt{\cos n} \quad \frac{\pi}{2} \rightarrow 0 \text{ (موجب) } - \text{ (سالب)}$$

✓  
0  
لا يمكن

$$\text{ب) } \lim_{n \rightarrow 0} \sqrt{n - 5\sqrt{n}}$$

$$n \geq 0 \rightarrow n^2 > 5n \rightarrow n^2 - 5n > 0 \rightarrow n > 5$$

✓  
لا يمكن

$$\text{الف) } \lim_{n \rightarrow +\infty} \frac{(-1)^{[\sin n]}}{n^5 - n^5} = \frac{(-1)^{[\sin n]}}{n^5(n^5 - 1)}$$

$$\frac{1}{-1} \rightarrow \frac{1}{-\infty} \rightarrow -\infty$$

$$\text{ب) } \lim_{n \rightarrow 2} \frac{n^5 - [n^5]}{n - [n]}$$

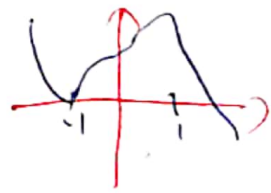
$$2^+ \rightarrow \frac{2^5 - 3}{2 - 2} = \frac{25}{0} \rightarrow +\infty$$

$$2^- \rightarrow \frac{2^5 - 1}{2 - 1} = 31$$

✓  
31

$$\text{الف) } y = \ln^5 - \ln^0 + 5 \rightarrow -\ln^5 + \ln^5 \rightarrow \ln^5(1 - n^5) = \ln^5(1 - n)(1 + n)$$

$$\frac{-1}{-1} \rightarrow \frac{1}{1}$$

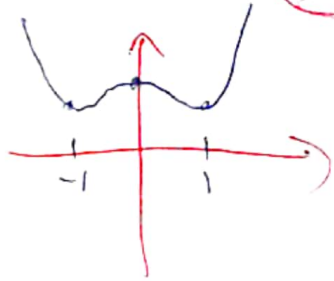


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براي جا نده

$$\text{ب) } y = n^5 - \ln^5 + 5$$

$$f(n^5) - f(n)$$

$$f(n^5 - 1) = f(n+1)(n-1)$$



✓