

الف) $\lim_{n \rightarrow +\infty} \frac{n+5}{n+1} = 1$ ب) $\lim_{n \rightarrow -\infty} \frac{n+5}{n+1} = 1$ ج) $\lim_{n \rightarrow +\infty} \frac{n+5}{n+1} = 1$ د) $\lim_{n \rightarrow +\infty} \frac{n+5}{n+1} = 1$

الف) $\lim_{n \rightarrow +\infty} (n-2) = \infty$ ب) $\lim_{n \rightarrow +\infty} (n-2) = \infty$ ج) $\lim_{n \rightarrow +\infty} (n-2) = \infty$ د) $\lim_{n \rightarrow +\infty} (n-2) = \infty$

الف) $\lim_{n \rightarrow +\infty} \frac{n^2+1}{2} = \infty$ ب) $\lim_{n \rightarrow +\infty} \frac{n^2+1}{2} = \infty$ ج) $\lim_{n \rightarrow +\infty} \frac{n^2+1}{2} = \infty$ د) $\lim_{n \rightarrow +\infty} \frac{n^2+1}{2} = \infty$

الف) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+5} = \frac{-4}{1-4+5} = \frac{-4}{2} = -2$ ب) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+5} = \frac{-4}{1-4+5} = \frac{-4}{2} = -2$ ج) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+5} = \frac{-4}{1-4+5} = \frac{-4}{2} = -2$ د) $\lim_{x \rightarrow 1} \frac{x-5}{x^2-4x+5} = \frac{-4}{1-4+5} = \frac{-4}{2} = -2$

الف) $\lim_{n \rightarrow -\infty} [-n] - [5n] = -\infty - \infty = -\infty$ ب) $\lim_{n \rightarrow -\infty} [-n] - [5n] = -\infty - \infty = -\infty$ ج) $\lim_{n \rightarrow -\infty} [-n] - [5n] = -\infty - \infty = -\infty$ د) $\lim_{n \rightarrow -\infty} [-n] - [5n] = -\infty - \infty = -\infty$

الف) $\lim_{x \rightarrow 1} (x^3 - 3x^2 + 3) = 1 - 3 + 3 = 1$ ب) $\lim_{x \rightarrow 1} (x^3 - 3x^2 + 3) = 1 - 3 + 3 = 1$ ج) $\lim_{x \rightarrow 1} (x^3 - 3x^2 + 3) = 1 - 3 + 3 = 1$ د) $\lim_{x \rightarrow 1} (x^3 - 3x^2 + 3) = 1 - 3 + 3 = 1$

الف) $\lim_{x \rightarrow 2} \frac{x^2-1}{x^2-4} = \frac{3}{0} = \infty$ ب) $\lim_{x \rightarrow 2} \frac{x^2-1}{x^2-4} = \frac{3}{0} = \infty$ ج) $\lim_{x \rightarrow 2} \frac{x^2-1}{x^2-4} = \frac{3}{0} = \infty$ د) $\lim_{x \rightarrow 2} \frac{x^2-1}{x^2-4} = \frac{3}{0} = \infty$

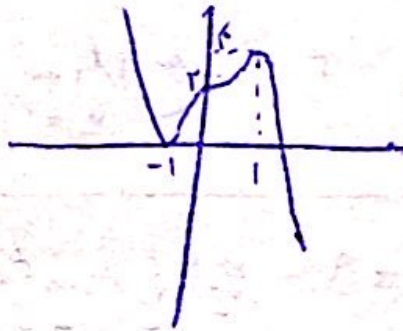
الف) $\lim_{n \rightarrow \frac{\pi}{2}} \sqrt{\cos n} = 0$ ب) $\lim_{n \rightarrow \frac{\pi}{2}} \sqrt{\cos n} = 0$ ج) $\lim_{n \rightarrow \frac{\pi}{2}} \sqrt{\cos n} = 0$ د) $\lim_{n \rightarrow \frac{\pi}{2}} \sqrt{\cos n} = 0$

الف) $\lim_{x \rightarrow +\infty} \frac{(-1)^{\sin x}}{x^2-2} = \frac{1}{\infty} = 0$ ب) $\lim_{x \rightarrow +\infty} \frac{(-1)^{\sin x}}{x^2-2} = \frac{1}{\infty} = 0$ ج) $\lim_{x \rightarrow +\infty} \frac{(-1)^{\sin x}}{x^2-2} = \frac{1}{\infty} = 0$ د) $\lim_{x \rightarrow +\infty} \frac{(-1)^{\sin x}}{x^2-2} = \frac{1}{\infty} = 0$

الف) $\lim_{x \rightarrow 2} \frac{x^2 - [x^2]}{x - [x]} = \frac{4 - 4}{2 - 2} = \frac{0}{0}$ ب) $\lim_{x \rightarrow 2} \frac{x^2 - [x^2]}{x - [x]} = \frac{4 - 4}{2 - 2} = \frac{0}{0}$ ج) $\lim_{x \rightarrow 2} \frac{x^2 - [x^2]}{x - [x]} = \frac{4 - 4}{2 - 2} = \frac{0}{0}$ د) $\lim_{x \rightarrow 2} \frac{x^2 - [x^2]}{x - [x]} = \frac{4 - 4}{2 - 2} = \frac{0}{0}$

١) $5x^3 - 3x^5 + 2 \xrightarrow{\text{نقطة}} y = 15x^2 - 15x^4 \rightarrow y = 15x^2(1-x^2) \xrightarrow{\text{نقطة}} x = 0, 1, -1$

x	-1	0	1
y'	-	+	+
y	↘	↗	↘
	①	②	④



ب) $x^4 - 2x^2 + 3 \xrightarrow{\text{نقطة}} y = 4x^3 - 4x \rightarrow y = 4x(x^2 - 1) \xrightarrow{\text{نقطة}} x = 0, 1, -1$

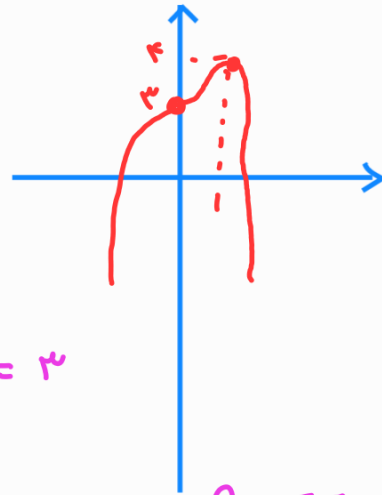
x	-1	0	1
y'	-	+	-
y	↘	↗	↘
	①	③	②



$$y = [\epsilon n^3 - 3n^2 + 3] \rightarrow y' = 3\epsilon n^2 - 6n \rightarrow y' = 0 \rightarrow 3\epsilon n^2(1-n) = 0$$

$n=0, n=1$

		*	
		0	1
y'	-	-	+
y	↘	↘	↗



ا) $\lim_{n \rightarrow 1} [\epsilon n^3 - 3n^2 + 3] = [\epsilon^-] = 3$

ب) $\lim_{n \rightarrow 0} [\epsilon n^3 - 3n^2 + 3] = \begin{cases} \rightarrow n > 0 \rightarrow \lim[y] = [\epsilon^+] = 3 \\ \rightarrow n < 0 \rightarrow \lim[y] = [\epsilon^-] = 3 \end{cases}$