

دائرة محو

18 اولى

19, 20

مراجعة

الف) $\lim_{n \rightarrow 1^+} \frac{n+2}{n+1} = \frac{3}{2} = 1.5$ ✓

ب) $\lim_{n \rightarrow 2} \frac{n+2}{n+1} = \frac{4}{3} = 1.33$ ✓

ج) $\lim_{n \rightarrow 1^-} \frac{n+2}{n+1} = \frac{3}{2} = 1.5$ ✓

د) $\lim_{n \rightarrow 0} \frac{n+2}{[n]}$ $\rightarrow \frac{2}{0} \rightarrow \infty$ ✓ (2)

الف) $\lim_{n \rightarrow 1^-} f[n] - 1 = 1 - 1 = 0$ ✓

ب) $\left[\lim_{n \rightarrow 1^-} f[n] - 1 \right] = 0$ ✓

ج) $\lim_{n \rightarrow 1^-} [f[n] - 1] = 0$ ✓

د) $\left[\lim_{n \rightarrow 1^+} f[n] - 1 \right] = 0$ ✓ (2)

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

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

ج) $\lim_{n \rightarrow 1^-} \left[\frac{[n]+1}{n} \right] = 2$ ✓

د) $\left[\lim_{n \rightarrow 1^+} \frac{[n]+1}{n} \right] = 2$ ✓ (2)

الف) $\lim_{n \rightarrow 1} \frac{n-2}{n^2-4n+4} = \lim_{n \rightarrow 1} \frac{1}{n-1}$ $\rightarrow 1^+ : \frac{1}{0^+} = +\infty$ $\rightarrow 1^- : \frac{1}{0^-} = -\infty$ ✓

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

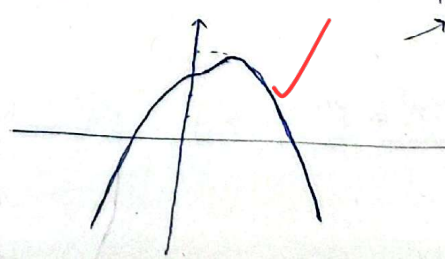
الف) $\lim_{n \rightarrow -3} [-n] - [2n]$ $\rightarrow -3^+ : 1 + 12 = 13$ $\rightarrow -3^- : 4 + 12 = 16$ ✓ (2)

ب) $\lim_{n \rightarrow (-\frac{1}{2})^-} \left[\frac{-1}{n^2} \right] = -14$ $n < -\frac{1}{2} \rightarrow n^2 > \frac{1}{4} \rightarrow \frac{1}{n^2} < 4 \rightarrow \frac{-1}{n^2} > -4 \rightarrow \left[\frac{-1}{n^2} \right] = -14$ ✓

الف) $\lim_{n \rightarrow 1} [f(n) - 3n^2 + 3] = 1$ ✓

ب) $y = -3n^2 + 5n^2 + 3 \rightarrow y' = -12n^2 + 10n^2$ $y' = -12n^2 (n-1)$ $\begin{matrix} + & | & + & | & - \\ \rightarrow & | & \rightarrow & | & \rightarrow \end{matrix}$ (4)

ج) $\lim_{n \rightarrow 0} [f(n) - 3n^2 + 3] \rightarrow 0^+ : 3$ $\rightarrow 0^- : 3$ ✓



(2)

الف) $\lim_{n \rightarrow r} \frac{|n^r - 1|}{n^r - \varepsilon} \xrightarrow{r^+} \frac{|n-r| |n^r + \varepsilon + r_n|}{(n-r)(n+r)} = \frac{|n^r + \varepsilon + r_n|}{n+r} = \frac{1r}{\varepsilon} = r \quad (v)$
 $\xrightarrow{r^-} \frac{-|n-r| |n^r + \varepsilon + r_n|}{(n-r)(n+r)} = \frac{-|n^r + r_n + \varepsilon|}{n+r} = -\frac{1r}{\varepsilon} = -r$

ب) $\lim_{n \rightarrow \pi} \frac{|\sin n|}{\sin r_n} \xrightarrow{\pi^+} \frac{|\sin n|}{r \sin n \cos n} = \frac{-1}{r \cos n} = \frac{-1}{-r} = \frac{1}{r} \quad (y)$
 $\xrightarrow{\pi^-} \frac{|\sin n|}{r \sin n \cos n} = \frac{1}{r \cos n} = -\frac{1}{r}$

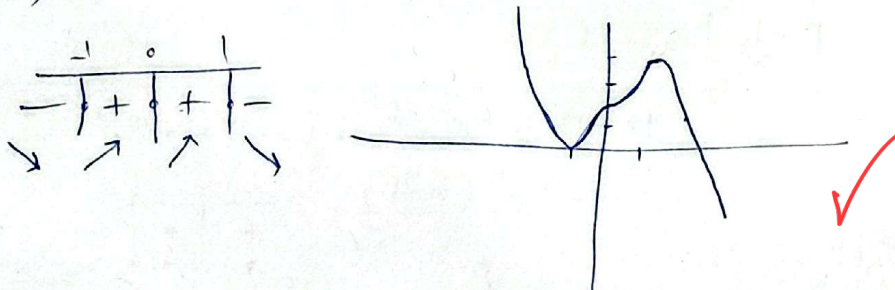
الف) $\lim_{n \rightarrow \frac{\pi}{r}} \sqrt{\cos n} \xrightarrow{\frac{\pi}{r}^+} : 0 \quad (1)$
 $\xrightarrow{\frac{\pi}{r}^-} : 0 \cup \bar{0}$

ب) $\lim_{n \rightarrow 0} \sqrt{n - r\sqrt{n}} \xrightarrow{0^+} : n - r\sqrt{n} \gg 0 \rightarrow \sqrt{n}(\sqrt{n} - r) \gg 0 \rightarrow \frac{+}{+1-1+} \xrightarrow{0^+} \frac{f}{g} \rightarrow \frac{0}{0}$
 $\xrightarrow{0^-} : 0 \cup \bar{0}$

الف) $\lim_{n \rightarrow 0^+} \frac{(-1)^{\lfloor \sin n \rfloor}}{n^r(n-1)} = \frac{(-1)^0}{n^r(n-1)} = \frac{1}{n^r(n-1)} = \frac{1}{0^-} = -\infty \quad (9)$
 $(1, \infty)$

ب) $\lim_{n \rightarrow r} \frac{n^r - \lfloor n^r \rfloor}{n - \lfloor n \rfloor} \xrightarrow{r^+} \frac{n^r - f}{n - r} = n + r = f$
 $\xrightarrow{r^-} \frac{n^r - \mu}{n - 1} = \frac{1}{1} = 1$

الف) $y = -r n^0 + a n^r + r \rightarrow y' = -1 a n^r + 1 a n^r \rightarrow -1 a n^r (n^r - 1) \rightarrow$ (10)



ب) $y = n^r - r n^r + r \rightarrow y' = r n^r - r n \rightarrow r n (n^r - 1) \rightarrow$