

7 $\lim_{n \rightarrow 1} \frac{|(n+m+1)(n-1)|}{|n-1|(m|n+1|+1)} = \lim_{n \rightarrow 1} \frac{|n+m+1|}{m|n+1|+1} = \lim_{n \rightarrow 1} \frac{|r+m|}{r+m+1}$

عقود تعريف $l(1)$ $|r+m|=0 \Rightarrow m=-r \Rightarrow l(1)$

$r+m > 0 \Rightarrow \frac{r+m}{r+m+1} = \frac{m}{m+r} \Rightarrow (m+r)^2 = m(r+m+1) \Rightarrow m^2 - r^2 - \epsilon = 0 \Rightarrow m = r$

$r+m < 0 \Rightarrow -\frac{(r+m)}{r+m+1} = \frac{m}{m+r} \Rightarrow m^2 + m + \epsilon = 0 \Rightarrow \Delta < 0$

$m|n+1|+1 \neq 0 \Rightarrow |n+1| \neq -\frac{1}{m} \Rightarrow m \neq 0 \Rightarrow m = r$

عقود $l(1)$ $\lim_{n \rightarrow \frac{1}{r}} l(n) = \lim_{n \rightarrow \frac{1}{r}} \frac{1 + \frac{1}{r} + 1}{r|\frac{1}{r}+1|+1} = \frac{\frac{r+1}{r}}{r} = \boxed{\frac{r+1}{r^2}}$

9 $f(n) = \frac{\sqrt{r} |an+a|}{|n^3+(m-r)n+a|} \Rightarrow n=a$ منقول $\Rightarrow (n-a)^3 = n^3 + a^3 - 3an^2 + 3a^2n \Rightarrow -3a = 0 \Rightarrow a=0$

منقول $\Rightarrow a=0$ $n^3 - a^3 \Rightarrow m-r=0 \Rightarrow m=r$ $a^3 = a^2 \Rightarrow a=-1$ $a=0$

$\Rightarrow f(n) = \frac{\sqrt{r} |n+1|}{|n^3+1|} \Rightarrow \lim_{n \rightarrow -1} \frac{\sqrt{r} |n+1|}{|n^3+1|} = \lim_{n \rightarrow -1} \frac{\sqrt{r}}{|n^2+1|} = \boxed{\frac{\sqrt{r}}{r}}$

10 $\lim_{n \rightarrow 0^+} l(n) = \lim_{n \rightarrow 0^+} \frac{n^r+n}{n^r+an} = \lim_{n \rightarrow 0^+} \frac{n+1}{n+a} = \frac{1}{a}$

$\lim_{n \rightarrow 0^-} l(n) = \lim_{n \rightarrow 0^-} \frac{n^r-n}{n^r-an} = \lim_{n \rightarrow 0^-} \frac{n-1}{n-a} = \frac{1}{a}$

$\Rightarrow \frac{ra-1}{ra+r} = \frac{1}{a} \Rightarrow ra^2 - a = ra+r \Rightarrow ra^2 - ra - r = 0$

عقود $\Rightarrow a = \frac{1}{r}$ $a = r$

$\lim_{n \rightarrow \frac{1}{r}} \frac{n^r+n}{n^r+rn} = \frac{\frac{1}{r} + \frac{1}{r}}{\frac{1}{r} + 1} = \boxed{\frac{r}{r+1}}$