

★ ۱۹ آفرین

آواهای کا - تکلف ۲۱

$$\Delta \leq 0 \Rightarrow (m-3)^2 - 12m \leq 0 \Rightarrow m^2 - 4m + 9 \leq 0 \Rightarrow m \leq 3$$

$$r m^2 + a^2 \xrightarrow{u=a} r a^2 + a^2 \leq 0 \Rightarrow a \leq -\frac{1}{r}$$

$$\lim_{r \rightarrow \frac{1}{\sqrt{2}}} \sqrt{4(m+\frac{1}{r})^2} = \frac{\sqrt{4}}{\frac{1}{r}} = \frac{2\sqrt{4}}{r} \quad \frac{r \tan b}{\sqrt{-m}} \xrightarrow{u=a} \frac{r \tan b}{\frac{1}{\sqrt{r}}} = \frac{r\sqrt{r} \tan b}{1}$$

$$\Rightarrow r\sqrt{r} \tan b = \frac{2\sqrt{4}}{r} \Rightarrow \tan b = \frac{\sqrt{4}}{r} \xrightarrow{0 < b < \pi} b = \frac{\pi}{4}$$

D

$$2. u^2, a, u+b$$

$$= (u-1)(u+k)$$

$$\Rightarrow u=1 \text{ ریشه} \Rightarrow a(1) - a + b = 0 \Rightarrow a - b = a \quad (I)$$

$$u=1 \text{ ریشه} \Rightarrow 1 + a + b = 0 \Rightarrow a + b = -1 \quad (II) \quad \xrightarrow{I, II} a = 2 \quad b = -3$$

D

$$\Rightarrow \left[\frac{b-1a}{r} \right] = \left[\frac{-3-2}{r} \right] = -\frac{5}{r}$$

همچنین چون اشاره شده که در ۱ پیوسته نباشد یعنی حد تابع در نقطه ۱ را ریشه نخرج

در نظرش بود

$$3. u \leq 1 \Rightarrow \tan \frac{3\pi}{8}, u > 1 \Rightarrow \frac{(u+2)(u-1)}{a(1-u)} = \frac{u+2}{-a} \Rightarrow \frac{u+2}{-a} = -1$$

$$(1) + 2 = a \Rightarrow a = 3$$

V8

$$u < 2 \Rightarrow \frac{(u+2)(u-1)}{a(1-u)} = \frac{u+2}{-a}, u \geq 2 \Rightarrow b(1) \Rightarrow \frac{2+2}{r} = 1 + b \Rightarrow b = \frac{4}{r} - 1$$

$$\Rightarrow ab = r \left(\frac{4}{r} - 1 \right) = 4 - r$$

$$4. a[u] + a + bu + b[a+1]$$

$$u \rightarrow a^+ \quad a + b[a] + b$$

$$u \rightarrow a^- \quad -a + a - b + b[a] + b$$

$$\left. \begin{array}{l} a + b[a] + b \\ -a + a - b + b[a] + b \end{array} \right\} = b[a]$$

$$a + b = 0 \\ b = -a$$

$$f(a) = a[a] + a - a[a] - a[a] - a = -a[a]$$

$$\frac{a[a]}{f(a)} = \frac{a[a]}{-a[a]} = -1$$

D

5. $b(u^r, au) - ra$ $\xrightarrow{\text{بموجب تعريف}} b \circ \circ \rightarrow f(u) = -ra$

$\frac{a}{f(u)} = \frac{a}{-ra} = -\frac{1}{r}$ ✓

Ⓟ

6. $\lim_{u \rightarrow a} f(u) = r \Rightarrow$ $\lim_{u \rightarrow a} f(u) = r \Rightarrow a^r, am, n =$

$f(u) = \circ \rightarrow ra^r, rma, n = \circ \rightarrow f(u), (u-a)(u-ra), -(u-ra)$

$\rightarrow u-a \rightarrow -(a-ra), r \rightarrow a, r$

$(u-a)(u-ra) = u^r - ra^r u + ra^r - u^r, m, n \rightarrow m: -ra^r \rightarrow m: -r$

$n-m = 1 - (-r) = 1+r$

Ⓟ

7. $u \rightarrow 0^+ \rightarrow (1-a)(u) + (ra^r-1)(-1) = 1-ra^r$ $u \rightarrow 0 \Rightarrow b \sin(\frac{\pi}{a})$

$u \rightarrow 0^- \rightarrow (1-a)(-1) + (ra^r-1)(0) = a-1 \xrightarrow{\text{بموجب}} 1-ra^r = a-1 \rightarrow a: \frac{r}{r}$

$a: -1 \rightarrow b \sin(\frac{\pi}{a}), b \sin(\pi) = 0$ } GGE

$a-1 = 1-ra^r = -r$

$a: \frac{r}{r} \rightarrow b \sin(\frac{\pi}{r}) = -b$ Ⓟ

$a-1 = 1-ra^r = -\frac{1}{r} \Rightarrow b = \frac{1}{r}$

$\rightarrow \frac{a}{b} = \frac{r}{\frac{1}{r}} = r$

8. $\frac{|u-1||u+m+1|}{|u-1|(m|u+1|+1)} \xrightarrow{u \rightarrow 1} \frac{|m+1|}{r m+1} = \frac{m}{m+r}$

Ⓟ

$m < -r \rightarrow -m^r - \varepsilon m - r = r m^r, m \Rightarrow r m^r, \Delta m + \varepsilon = 0 \Rightarrow \Delta < 0 \text{ GGE}$

$m > -r \rightarrow m^r + \varepsilon m + r = r m^r, m \Rightarrow m^r - r m - r = 0$
 $(m-r)(m+1) = 0 \rightarrow m = r \text{ Ⓟ}$
 $m = -1 \text{ Ⓟ}$

① $\lim_{u \rightarrow \frac{1}{2}} f(u) = \frac{1 \cdot \frac{1}{2} \cdot \frac{1}{2} + 1}{(\frac{1}{2} \cdot \frac{1}{2} + 1)} = \frac{\frac{r}{r}}{\frac{19}{19}} = \frac{r}{19}$

② $\lim_{u \rightarrow -1} f(u) = \frac{1-1-1+1}{(-1-1+1)} = 1$

9. $\lim_{u \rightarrow a} \sqrt{1+u^r} = a \Rightarrow a(a+1) = 0 \rightarrow a = 0 \text{ GGE}$

$a: -1 \rightarrow f(u) = \frac{\sqrt{1-u-1}}{|m^r - (r-r)u^r + 1|} = \frac{\sqrt{1|u+1|}}{|m^r + 1|}$
 $\xrightarrow{\text{بموجب تعريف}} \frac{1-1-(1+1)}{(-1-1+1)} = m: r$

$\rightarrow \lim_{u \rightarrow -1} f(u) = \frac{0}{0} \xrightarrow{\text{بموجب}} \lim_{u \rightarrow -1} f(u) = \frac{\sqrt{r}}{r} = \frac{\sqrt{r}}{r}$ Ⓟ

Date

No

$$10. \quad u \rightarrow 0^+ \quad \frac{u(u+1)}{u(u+a)}, \quad \frac{u+1}{u+a} \sim \frac{1}{a} \quad u \rightarrow 0^- \quad \frac{u(u-1)}{u(u-a)}, \quad \frac{1}{a}$$

$$\frac{1}{a} + \frac{r(a-1)}{ra+r} \Rightarrow ra+r, \quad ra^r-a \Rightarrow ra^r-ra-r, \quad a^r-ra-\varepsilon, \quad (a-\varepsilon)(a+1) \sim 0 \Rightarrow a \sim \frac{1}{r}$$

$$a \sim r \quad \lim_{u \rightarrow \frac{1}{r}} f(u), \quad \frac{\frac{1}{r}+1}{\frac{1}{r}+r} = \frac{r}{a}$$

الخاتمة

$$\lim_{u \rightarrow -r} f(u), \quad \frac{r+1}{r-\frac{1}{r}} = \frac{r}{r} = r$$

$$f(1) = \tan \frac{\pi}{4} = -1$$

۳- تابع در $x=1$ پیوسته از راست و $x=5$ پیوسته از چپ دارد!

$$\lim_{n \rightarrow 1^+} \frac{|x^2 + x - 2|}{a(1-n)} = \frac{(x+2)(x-1)}{-a(1-n)} = -1 \rightarrow \frac{x}{a} = 1 \rightarrow a = x$$

$$f(5) = b(5 - [-5]) = 10b \quad \lim_{n \rightarrow 5^-} \frac{|x^2 + x - 2|}{x(1-n)} = -\frac{24}{12} = -\frac{2}{3}$$

$$\rightarrow b = -\frac{2}{10} \rightarrow ab = -\frac{2}{10} \times 3 = \boxed{-.12}$$

$$\lim_{n \rightarrow 1} \frac{|(n-1)(n+m+1)|}{m|(n-1)(n+1)| + |n-1|} = \frac{|n-1|(n+m+1)}{|n-1|(m|n+1| + 1)} = \frac{|m+1|}{2m+1} = \frac{m}{m+2}$$

$$m \geq -2 \rightarrow m^2 + \varepsilon m + 2 = 2m^2 + m \rightarrow m = -1 \rightarrow \text{مفرج ریشه دارد!} \\ m \leq 2 \rightarrow \frac{|x^2 + \varepsilon x - 5|}{|n-1|(\varepsilon|n+1| + 1)} = \frac{5 + \frac{1}{2}}{4(\frac{5}{2}) + 1} = \frac{\frac{11}{2}}{11} = \frac{1}{2}$$

$$\lim_{n \rightarrow 1^+} \frac{x^2 + n}{x^2 + an} = \frac{x(n+1)}{x(n+a)} = \frac{1}{a}$$

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$$\lim_{n \rightarrow 1^-} \frac{x^2 - n}{x^2 - an} = \frac{n(n-1)}{n(n-a)} = \frac{1}{a}$$

$$\rightarrow f(\cdot) = \frac{2a-1}{2a+2} = \frac{1}{a} \rightarrow 2a^2 - 3a - 2 = 0 \rightarrow a = 2$$

$$\rightarrow a = \frac{1}{3}$$

مفرج ریشه دارد! و پیوسته نیست!

$$\text{if } a=2 \rightarrow \lim_{n \rightarrow \frac{1}{3}} \frac{x^2 + n}{x^2 + 2n} = \frac{\frac{1}{2} + \frac{1}{3}}{\frac{1}{2} + 1} = \frac{\frac{5}{6}}{\frac{3}{2}} = \boxed{\frac{5}{9}}$$