

5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

$$\Gamma(n+1) = \Gamma(n) + n \Gamma(n) = \Gamma(n) + 1$$
$$\Gamma(-n) - n \Gamma(n) = \Gamma(n) + 1$$

$$\Rightarrow \Gamma(-n) = \Gamma(n) + n \Gamma(n) + 1$$

$$\Gamma(n) + n (\Gamma(n) + n \Gamma(n) + 1) = \Gamma(n) + 1$$

$$\Gamma(n) + n \Gamma(n) + n^2 \Gamma(n) + n = \Gamma(n) + 1$$

$$\Gamma(n) (1 + n^2) + n - 1 = \frac{\Gamma(n) - n \Gamma(n)}{\Gamma(n) (1 - n) + (1 - n)}$$

$$(1 + n^2) \Gamma(n) = \frac{(1 - n) (\Gamma(n) + 1)}{(1 + n^2)}$$

$$\Gamma(n) = \frac{(1 - n) (\Gamma(n) + 1)}{(1 + n^2)}$$

$$\nabla \rightarrow n=0 \Rightarrow \nabla A(0) = (0)^T - \psi(0) + \psi \rightarrow \nabla A(0) = \psi$$

$$\Rightarrow A(n) + \psi = n^T - \psi n + \psi \rightarrow A(n) = n^T - \psi n + \psi$$

$$\rightarrow A(n^T) = (n^T)^T - \psi(n^T) + \psi = n^T - \psi n^T + \psi$$

$$y = \frac{n^T + n + \psi}{n-1} \Rightarrow y(n-1) = n^T + n + \psi$$

$$\Rightarrow n^T + (1-y)n + y + \psi = 0$$

$$n = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow n = \frac{y-1 \pm \sqrt{(1-y)^2 - 4(y+\psi)}}{2} \geq 0$$

$$\Rightarrow y^2 - 4y + 1 - 4(y+\psi) > 0 \rightarrow y^2 - 4y - 4\psi > 0$$

$$\Rightarrow R_f = (-1, \psi) \rightarrow R = (-1, \psi)$$

$$\text{الف) } \nabla n^T - \psi n + 1 \rightarrow \left. \frac{\partial}{\partial n} \right|_{\text{ent}} = \frac{-(\psi n - 1)}{1} = \frac{-1\psi}{1}$$

$$\Rightarrow R_f = \left(-\frac{1\psi}{1}, +\infty\right)$$

$$\text{ب) } \sqrt{-n^T + 4n - \psi} \rightarrow -n^T + 4n - \psi \rightarrow \left. \frac{\partial}{\partial n} \right|_{\text{ent}} = \frac{-(4n - \psi)}{-1}$$

$$2) \sqrt{x^2 - 3x^2 + 4x + 1} \rightarrow x^2 - 3x^2 + 4x + 1 \Rightarrow R = \sqrt{R_1} = [0, 1] \text{ چون ر.ب. فرد است.}$$

$$3) \text{ لای } (x^3 - 4x^2 + 6x + 4) \rightarrow (-\infty, +\infty) = R_p$$

$$4) \frac{x^{n+1}}{x^{n-1}} \Rightarrow R_f = R_1 - \left\{ \frac{1}{x} \right\}$$

$$5) \sqrt{\frac{x^{n+1}}{x^{n-1}}} = R - \left\{ \sqrt{x} = 1 \right\}$$

$$2) \frac{x^2 + 3 + 1}{\sqrt{x^2 + 3}} = \frac{x^2 + 3}{\sqrt{x^2 + 3}} + \frac{1}{\sqrt{x^2 + 3}} = \sqrt{x^2 + 3} + \frac{1}{\sqrt{x^2 + 3}}$$

$$\Rightarrow \left\{ \sqrt{x^2 + 3} + \frac{1}{\sqrt{x^2 + 3}} \right\} \min x = 0 \rightarrow \min = \sqrt{3} + \frac{1}{\sqrt{3}} = \frac{4}{\sqrt{3}}$$

$$\Rightarrow R = \left[\frac{4}{\sqrt{3}}, +\infty \right)$$

$$6) \text{ ی. و. ا. } y = \frac{3x^2 + 4}{x^2 - 1} \rightarrow yx^2 - y = 3x^2 + 4$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{\pm \sqrt{0 - 4(y+3)(-y+3)}}{2(y-3)} = \frac{\pm \sqrt{4(9-y^2)}}{2(y-3)}$$

$$R(y-3)(y+3) > 0$$

$$\frac{-3}{+} \frac{3}{-} \Rightarrow 9 - y^2 > 0 \Rightarrow y \neq 3 \Rightarrow R_f = (-\infty, 3) \cup (3, +\infty)$$

$$I \text{ و. ا. } : \max \rightarrow x^2 = +\infty \rightarrow y = 3$$

$$\min \rightarrow x^2 = 0 \rightarrow y = -3$$

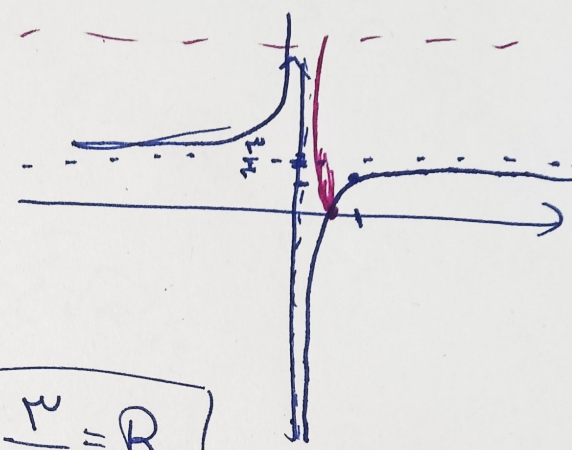
ریشه خارج = 1 است بوده
که در بازه وجود دارد پس
بدون خارج این را باز نیست

$$R = R_1 - [-3, 3]$$

$$\lim_{n \rightarrow \infty} \frac{r \ln n + r}{\ln n - r} \xrightarrow{\frac{\infty}{\infty}} y = \frac{r}{-r} = -1$$

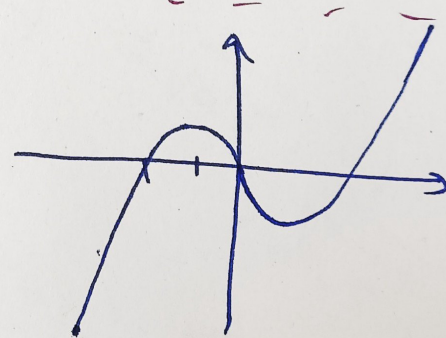
$$\lim_{n \rightarrow \infty} \frac{r}{\ln n} = -\frac{r}{r} = -1$$

$$\Rightarrow R_L = \left[-1, -\frac{1}{r}\right] \xrightarrow{\lim_{n \rightarrow -1}} -\frac{r}{\cancel{\infty}} = -\frac{r}{\infty} = -\frac{1}{r}$$

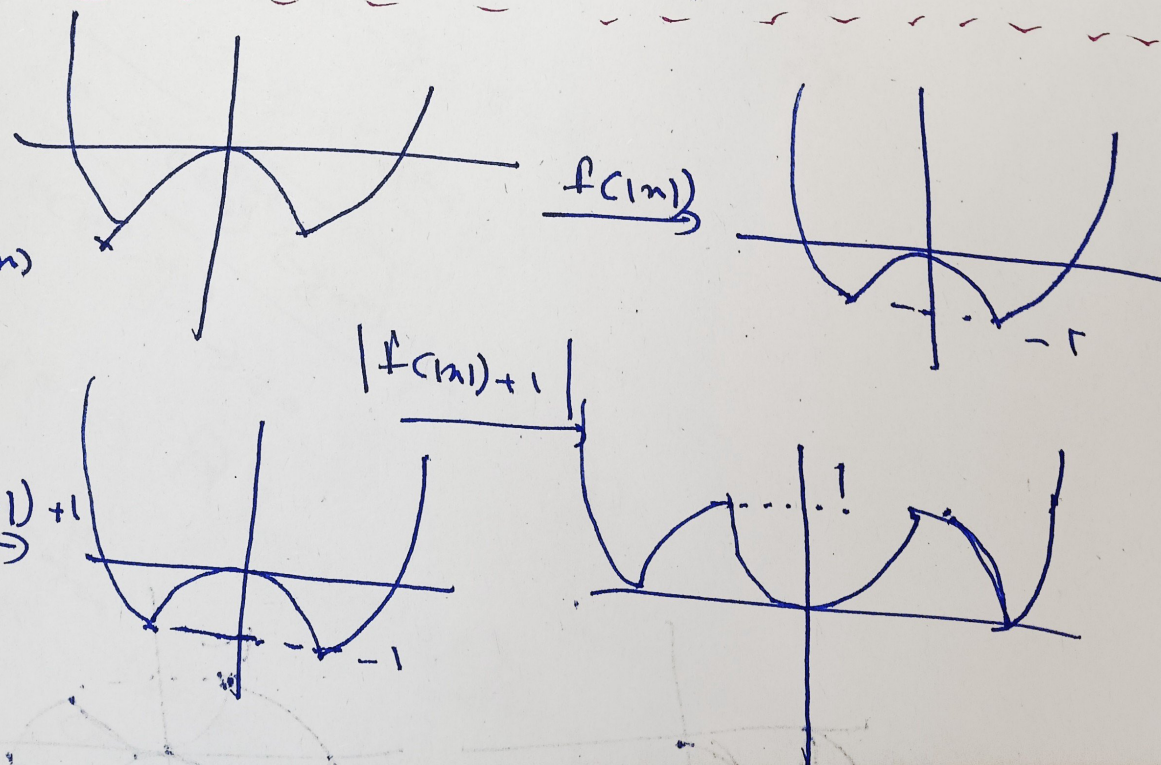
$$(1) \text{ (الف) } y = \left| \frac{r n - 1}{\ln n} \right|$$


$$R = [0, +\infty)$$

$$b) \sqrt{\frac{g(n-r)}{f(n-r)}} = \left[\frac{r}{r} = R \right]$$

$$(9) \frac{-n^r - rn}{n^r - rn}$$


$$-(n^r + rn) \quad R_L = R_1$$

$$(10)$$


$$f(n) \xrightarrow{f(f(n))} |f(f(n)) + 1|$$