

$$\frac{1}{\lambda-1} = |\lambda-1| \begin{cases} \lambda > 1 & 1 = \lambda^r - r\lambda + 1 \rightarrow \lambda^r - r\lambda = 0 \rightarrow \begin{cases} \lambda = 0 \\ \lambda = 1 \end{cases} \quad \begin{matrix} 0 < 1 & \bar{U}\bar{U}\bar{E} \\ & \bar{U}\bar{U} \end{matrix} \\ \lambda < 1 & 1 = -\lambda^r + r\lambda - 1 \rightarrow \lambda^r - r\lambda + r = 0 \quad \Delta < \end{cases}$$

اینجا کسر را 0 می نویسیم و 1 را به صورت 1/1 می نویسیم - 1/1 = 0

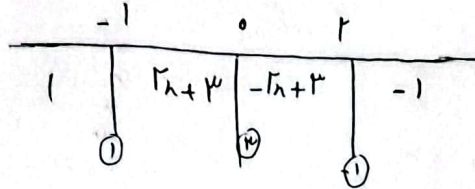
$$\left(\left|\frac{\lambda-1}{\lambda}\right| < r\right)^r \rightarrow \frac{\lambda^r - r\lambda + 1}{\lambda^r} - r < 0 \rightarrow \frac{\lambda^r - 1}{\lambda^r} > 0 \quad \left|\frac{0}{1} - \frac{1}{1}\right| \rightarrow R = \left(\frac{1}{r}, +\infty\right) \quad \leftarrow \text{و}$$

$$\left(\left|\frac{\lambda-1}{\lambda}\right| > r\right)^r \rightarrow \frac{\lambda^r - r\lambda + r}{\lambda^r + r\lambda + 1} - 1 > 0 \rightarrow \frac{-\lambda^r - \lambda\lambda + r}{\lambda^r + r\lambda + 1} > 0 \rightarrow \frac{-(\lambda^r - 1)(\lambda + r)}{(\lambda + 1)^r} > 0 \quad \frac{-r}{1+r} \rightarrow D = \left(-\frac{1}{r}, -\frac{1}{r}\right) \cup \left(\frac{1}{r}, \frac{1}{r}\right)$$

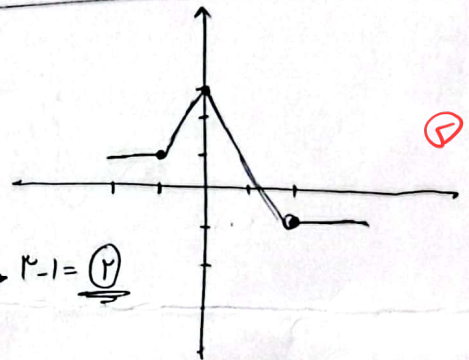
$$\lambda^r < |\lambda+1| \xrightarrow{\lambda > -1} \lambda^r - \lambda - 1 < 0 \rightarrow (\lambda^r - 1)(\lambda + 1) < 0 \quad \frac{-r}{1+r} \rightarrow -\frac{r+\mu}{r} = \frac{1}{r} \quad -\frac{1}{r} < \lambda - \frac{1}{r} < r - \frac{1}{r} \quad \leftarrow \text{و}$$

$$\lambda \leq -1 \rightarrow \lambda^r + \lambda + 1 > 0 \rightarrow \Delta < \quad \hookrightarrow \left|\lambda - \frac{1}{r}\right| < \frac{2}{r} \quad \boxed{\alpha = -\frac{1}{r}}$$

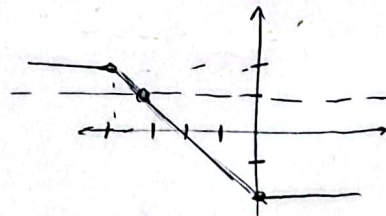
$$y = |\lambda+1| - |\lambda| + |\lambda-1|$$



$$\min = -1 \quad \max = r \rightarrow r-1 = \frac{2}{r}$$



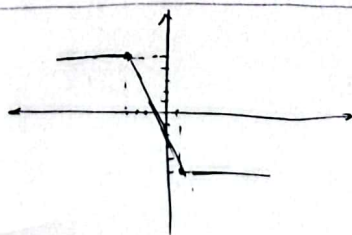
$$y = \left|\frac{1}{r}\lambda\right| - r \rightarrow \left|\frac{1}{r}(\lambda+1)\right| - 1 = \left|\frac{1}{r}\lambda + r\right| - 1 \quad \left|\frac{1}{r}\lambda\right| - r = \left|\frac{1}{r}\lambda + r\right| - 1 \rightarrow \left|\frac{1}{r}\lambda\right| - 1 = \left|\frac{1}{r}\lambda + r\right| \quad \leftarrow \text{و}$$



$$\hookrightarrow \left|\frac{1}{r}\lambda\right| - \left|\frac{1}{r}\lambda + r\right| = 1 \quad \frac{-r}{r} \quad \begin{matrix} r & -\lambda-r & -r \end{matrix}$$

$$-\lambda - r = 1 \rightarrow \boxed{\lambda = -r}$$

$$\text{و} f(\lambda) = \left[1 - \lambda\right] - \left[\lambda + r\right]$$



$$R_f = \{0, \pm 1, \pm r, \pm r, \pm r, \pm r\}$$

$$1) f(\lambda) = \frac{1}{\lambda} - \left[1 + \frac{1}{\lambda}\right] = \frac{1}{\lambda} - \left[\frac{1}{\lambda}\right] - 1 \rightarrow R_f = [-1, 0]$$

$$0 \leq \frac{1}{\lambda} - \left[\frac{1}{\lambda}\right] < 1$$

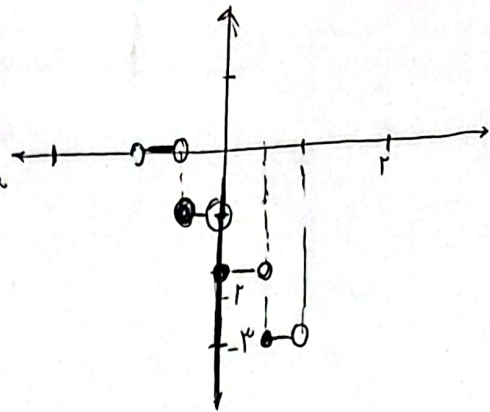
$$\text{a)} \lfloor -n \rfloor - 1$$

$$n \in (-1, 1) \rightarrow (-1, 0) \rightarrow +1 - 1 = 0$$

$$\hookrightarrow [-0, 0, 0) \rightarrow 0 - 1 = -1$$

$$\hookrightarrow [0, 0, 0) \rightarrow -1 - 1 = -2$$

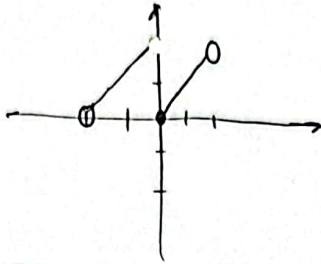
$$\hookrightarrow [0, 0, 1) \rightarrow -2 - 1 = -3$$



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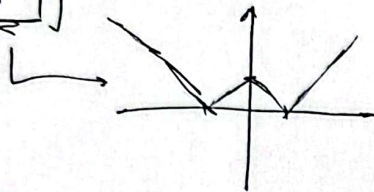
$$\text{b)} y = x - r \left\lfloor \frac{n}{r} \right\rfloor \xrightarrow{(-r, 0)} x + r$$

$$\xrightarrow{[0, +r)} x - r$$

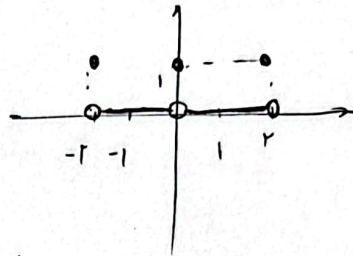


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$$\text{a)} \lfloor |n| - 1 \rfloor$$



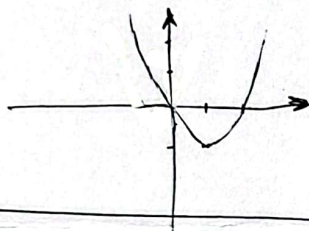
$$x \in [-r, r] \rightarrow$$



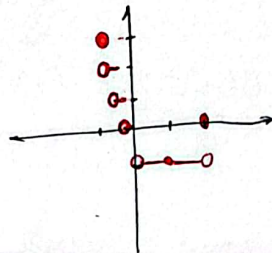
-1

$$\text{b)} y = \lfloor \frac{x^2 - r_n}{r} \rfloor \quad x \in [-1, r]$$

$$\hookrightarrow$$



$$x \in [1, r]$$



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$$a + [b] = r, r \rightarrow [a] + [b] + \frac{p_a}{f} = r, r$$

$$b - [a] = r, f$$

$$\hookrightarrow [b] - [a] + p_b = r, f$$

$$p_a = 0, r$$

$$[a] + [b] + p_a + p_b = r, f$$

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$$\rightarrow [a] + [b] = r$$

$$[b] - [a] = r$$

$$\frac{r[b] = 4}{r[b] = 4} \quad [b] = 3 \quad [a] = 1$$

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$$(1 + \sqrt{r})^9 + (1 - \sqrt{r})^9 = 198 \rightarrow (1 + \sqrt{r})^9 = 198 - (1 - \sqrt{r})^9$$

$$-1 < 1 - \sqrt{r} < 0 \rightarrow 0 < (1 - \sqrt{r})^9 < 1 \quad (1 + \sqrt{r})^9 = 198 - (0, \dots) = 197, \dots \hookrightarrow [(1 + \sqrt{r})^9] = 197$$

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