

1

$$\frac{1}{u-1} = |u-1| \Rightarrow (u-1)/|u-1| = 1$$

عقود
چون
پس این عبارت فضاکن ریاضی دارد

فرض کنیم $u > 0$
فرض کنیم $u < 0$
چون عبارت صحیح
واقع می شود

$u > 0 \Rightarrow (u-1)^2 = 1 \Rightarrow u-1 = 1 \Rightarrow u = 2$
 $u-1 = -1 \Rightarrow u = 0$

$u < 0 \Rightarrow -(u-1)^2 = 1 \Rightarrow (u-1)^2 = -1 \Rightarrow$ عقود

2

بزرگترین مقادیر $\frac{1}{n}$

$$| \frac{p_{n+1}-1}{n} | < 2 \Rightarrow -2 < \frac{p_{n+1}-1}{n} < 2 \Rightarrow \frac{p_{n+1}-1}{n} < 2 \Rightarrow \frac{p_{n+1}-1}{n} - 2 < 0 \Rightarrow \frac{p_{n+1}-1-2n}{n} < 0 \Rightarrow \frac{p_{n+1}-2n-1}{n} < 0$$

$\Rightarrow \frac{p_{n+1}-1}{n} > 0 \Rightarrow -2 < \frac{p_{n+1}-1}{n} \Rightarrow \frac{p_{n+1}-1}{n} + 2 > 0 \Rightarrow \frac{p_{n+1}-1+2n}{n} > 0 \Rightarrow \frac{p_{n+1}+2n-1}{n} > 0$

1) $| \frac{u-1}{p_{n+1}} | < 1 \Rightarrow \frac{u-1}{p_{n+1}} < 1 \Rightarrow \frac{u-1-p_{n+1}}{p_{n+1}} < 0 \Rightarrow \frac{u-1-p}{p_{n+1}} < 0$

$\frac{u-1}{p_{n+1}} < -1 \Rightarrow \frac{u-1-p_{n+1}}{p_{n+1}} < 0 \Rightarrow \frac{u-1-p}{p_{n+1}} < 0$

$\Rightarrow |NI| \Rightarrow \frac{1}{p}$

3

$u^p < |u+4| \Rightarrow |u+4| > u^p$
 $u^p < u+4 \Rightarrow u^p - u - 4 < 0 \Rightarrow (u-4)(u+1) < 0 \Rightarrow -2 < u < 4$

$\Rightarrow u^p < -(u+4) \Rightarrow u^p + u + 4 < 0 \Rightarrow \Delta = 1-24 = -23 < 0 \Rightarrow$ بدون جواب $\Rightarrow |u-4| < \beta \Rightarrow d = \frac{1}{p}$

$d = \frac{-p+1}{p} = +\frac{1}{p} \Rightarrow d = \frac{1}{p} \quad \beta = \frac{1}{p}$

ضرب
در
مقدار

4

$g = |u+1| - |p_{n+1}+u-1|$

نقطه بحرین و بیشترین مقدار

$u+1-p_{n+1}-1 = u-p_{n+1}$
 $u+1+p_{n+1}-1 = u+p_{n+1}$
 $-p_{n+1}+1 = 1-p_{n+1}$
 $-p_{n+1}-1 = -1-p_{n+1}$

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5

$y = \left| \frac{1}{p}u \right| - 2 \Rightarrow y = \left| \frac{u+4}{p} \right| - 2 \Rightarrow y = \left| \frac{u+4}{p} \right| - 1 \Rightarrow \left| \frac{u}{p} \right| - 2 = \left| \frac{u+4}{p} \right| - 1$

$\Rightarrow \left| \frac{u}{p} \right| - \left| \frac{u+4}{p} \right| = 1$

$\frac{u}{p} - \frac{u+4}{p} = 1 \Rightarrow \frac{u-u-4}{p} = 1 \Rightarrow \frac{-4}{p} = 1 \Rightarrow p = -4$

$\frac{u}{p} + \frac{u+4}{p} = 1 \Rightarrow \frac{u+u+4}{p} = 1 \Rightarrow \frac{2u+4}{p} = 1 \Rightarrow 2u+4 = p \Rightarrow u = \frac{p-4}{2}$

$p \neq 1$

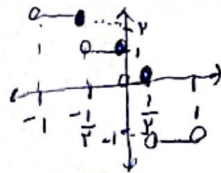
$u = -4$

فضاکن با $p=3$ متناهی است

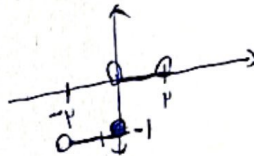
$$21.) [|x-1| - |x+1|] \Rightarrow \begin{cases} x \leq -1 \Rightarrow \textcircled{a} \\ -1 < x < 0 \Rightarrow -x-1 \\ x \geq 0 \Rightarrow -2 \end{cases} \quad R_f \Rightarrow [0, -2]$$

$$c.) f(x) = \frac{1}{x} - \left[\frac{x+1}{x} \right] \Rightarrow \frac{1}{x} - \left[1 + \frac{1}{x} \right] \Rightarrow \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \Rightarrow 0 \leq \frac{1}{x} - \left[\frac{1}{x} \right] < 1 \Rightarrow -1 \leq x - \left[\frac{1}{x} \right] - 1 < 0$$

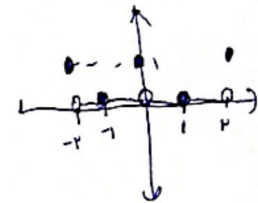
$$21.) f(x) = [-x] + 1 \quad (-1, 1)$$



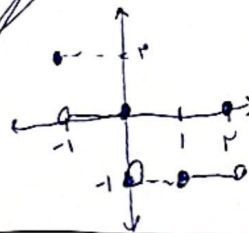
$$c.) f(x) = \frac{x}{x^2+1}$$



$$21.) [|x|-1] \quad x \in [-1, 2]$$



$$c.) [x^2 - 2x] \quad x \in [-1, 2]$$



$$\begin{aligned} a \in [b] = \varepsilon/4 \quad b - [a] = \eta/6 \Rightarrow [a] = m, [b] = n \quad m, n \in \mathbb{Z} \Rightarrow a \in \varepsilon/4 - n \quad b \in \eta/6 + m \\ \Rightarrow m \leq a < m+1 \quad n \leq b < n+1 \Rightarrow m \leq \varepsilon/4 - n < m+1 \Rightarrow m+n \leq \varepsilon/4 < m+n+1 \Rightarrow m+n \leq \varepsilon \\ \Rightarrow n-m \leq \varepsilon/4 < n-m+1 \Rightarrow n-m \leq \varepsilon \Rightarrow \begin{cases} m+n \leq \varepsilon \\ n-m \leq \varepsilon \end{cases} \Rightarrow n \leq \varepsilon \Rightarrow \begin{cases} a \leq \varepsilon/4 - n = 1/4 \\ b \leq \eta/6 + 1 = \varepsilon/4 \end{cases} \\ \Rightarrow a, b \in [1/4, \varepsilon/4] \end{aligned}$$

$$\begin{aligned} (4\sqrt{2})^4 + (1-\sqrt{2})^4 = 198 \Rightarrow 1-\sqrt{2} \leq -0.4142 \Rightarrow |1-\sqrt{2}| < 1 \Rightarrow 0 < (1-\sqrt{2})^4 < 1 \\ \Rightarrow 0 < (1-\sqrt{2})^4 < 1 \Rightarrow 195 < (1+\sqrt{2})^4 < 199 \Rightarrow [(1+\sqrt{2})^4] = 196 \end{aligned}$$