

اگر $f(u)$ ثابت باشد باید ضرایب u صفر باشد.

$$f(u) = u^2 + 2u + 1 + 9u^2 - 4u + 1 + mu^2 + nu + mn$$

$$10u^2 + mu^2 = 0 \Rightarrow m = -10 \quad +2u - 4u + nu = 0 \Rightarrow n = 4$$

$$g(u) = \{(4, -10)(4, p+1)(p+2, -1)(-9, p+k)\} \Rightarrow p+1 = -10 \Rightarrow p = -11$$

$$p+k = -1 \Rightarrow -11+k = -1 \Rightarrow k = 10$$

$$m+n+p+k = -10+4-11+10 = -7$$

الف) $\frac{u-2}{u^2-2u-1} \geq 0$

$$u^2-2u-1=0 \quad (u=t)$$

$$t^2-2t-1=0 \quad (t-4)(t+2)=0 \quad D_f = (-2, +\infty) - \{2\}$$

$$t=u=4 \Rightarrow u=\pm 2$$

$$t=u=-2 \quad \text{غیر حقیقی}$$

$2 \rightarrow$ ریشه منبج $-2 \rightarrow$ ریشه منبج

ب) $4-2[-u] \neq 0$

$$4 \neq 2[-u] \Rightarrow [-u] \neq 2 \Rightarrow$$

$$-u \neq [2, 3] \Rightarrow u \neq (-3, -2]$$

$$D_f = R - (-3, -2]$$

الف) $f(u) = \frac{\sqrt{u(u^2-1)}}{\sqrt{|u|+u}}$

$$u(u-1)(u+1) \geq 0 \quad \begin{matrix} -1 & 0 & 1 \\ - & + & - \\ \hline & + & - \end{matrix}$$

$$[-1, 0] \cup [1, +\infty)$$

$$|u|+u > 0 \quad \begin{matrix} \circ & \times \\ R^- & -x \\ R^+ & \checkmark \end{matrix} \quad D_f = [1, +\infty)$$

$$(0, +\infty) \cap [-1, 0] \cup [1, +\infty) = [1, +\infty)$$

ب) $f(u) = \frac{\sqrt{|u-2|-u^2}}{|u|-1}$

$$|u-2|-u^2 \geq 0 \Rightarrow |u-2| \geq u^2$$

$$u^2 = 2-u \Rightarrow u^2+u-2=0 \Rightarrow \begin{matrix} u=-2 \\ u=1 \end{matrix}$$

$$|u|-1 \neq 0 \quad |u| \neq 1 \quad u \neq \pm 1 \quad [-2, 1]$$

$$[-2, 1] \cap (R - \{\pm 1\}) = [-2, 1] - \{-1\} = D_f$$

$$||u-2|-1|-K \neq 0 \Rightarrow ||u-2|-1| \neq K \rightarrow |u-2|-1 \neq K \Rightarrow |u-2| \neq K+1$$

$$|u-2|-1 \neq -K \Rightarrow |u-2| \neq -K+1$$

$$|u-2| \neq K+1 \rightarrow u-2 \neq K+1 \quad u \neq K+3$$

$$\rightarrow u-2 \neq -K-1 \quad u \neq -K+1$$

$$|u-2| \neq -K+1 \rightarrow u-2 \neq 1-K \quad u \neq -K+3$$

$$\rightarrow u-2 \neq K-1 \quad u \neq K+1$$

$$K+1 = -K+1 \Rightarrow K=0 \quad \text{غیر حقیقی}$$

$$u \neq 3, 1 \quad \text{در صورتی که دامنه تعریف معادله را در نظر بگیریم}$$

$$K+1 = -K+3 \Rightarrow K=1 \quad \text{حقیقی}$$

$$u \neq 4, 0, 2 \quad \text{در صورتی که دامنه تعریف معادله را در نظر بگیریم}$$

$$y = 2u - [u] \quad [-2, 2]$$

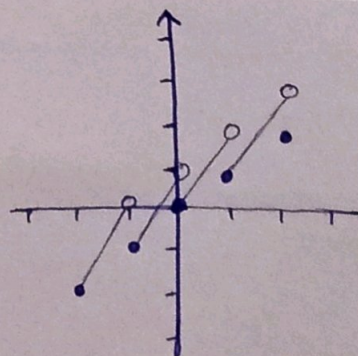
$$[-2, -1) \rightarrow -2 \quad 2u+2$$

$$[-1, 0) \rightarrow -1 \quad 2u+1$$

$$[0, 1) \rightarrow 0 \quad 2u$$

$$[1, 2) \rightarrow 1 \quad 2u-1$$

$$2 \rightarrow 2 \quad 2u-2$$



$$f(a) = \frac{a^2 - 5a + 6}{a + 1} + b \Rightarrow \text{تابع‌ها نمی باشد!}$$

$$\frac{(n-1)(n-r)}{n+a} + b = n \rightarrow \textcircled{i} \underline{\underline{a=-1}} \quad \frac{(n-1)(n-r)}{n-1} + b \Rightarrow n-r+b=n \quad \underline{\underline{b=r}}$$

$$\qquad\qquad\qquad \searrow \textcircled{ii} \underline{\underline{a=-r}} \quad \frac{(n-1)(n-r)}{n-r} + b \Rightarrow n-1+b=n \quad \underline{\underline{b=1}}$$

$$\underline{a-b = -k}$$

$$f(n) = \begin{cases} \frac{n^r + p n^{r-1} - n - r}{n^r - 1} & n \neq \pm 1 \\ \frac{a n + r}{n + b} & n = \pm 1 \end{cases}$$

$$\left. \begin{aligned} g(1) &= r \quad \frac{a+r}{1+b} = r \quad a+r = r+rb \Rightarrow \cancel{r}b - a = -1 \\ g(-1) &= 1 \quad \frac{-a+r}{-1+b} = 1 \quad -a+r = -1+b \Rightarrow b+a = r \end{aligned} \right\} \text{ if } b=r \Rightarrow b = \frac{2}{r}$$

$$b+c = \frac{1}{r} + r = \textcircled{r + \frac{1}{r}}$$

$$f(m) = \sqrt{\varepsilon_m - \nu\alpha} + K - 1 \quad g(m) = \sqrt{b - \varepsilon_m + \nu K} \quad \text{if } g = \{(1, K)\}$$

$$D_f \cap g = \{1\} \quad \begin{aligned} r_m - r_a \geq 0 &\rightarrow \varepsilon m \geq r_a \rightarrow m \geq \frac{r_a}{\varepsilon} & \frac{r_a}{\varepsilon} = 1 \Rightarrow a = \frac{r}{\varepsilon} \\ b - r_m \geq 0 &\rightarrow b \geq r_m \rightarrow \frac{b}{\varepsilon} \geq m & \frac{b}{\varepsilon} = 1 \Rightarrow b = r \end{aligned}$$

$$f(1) - g(1) = 1K - 1 - 2K = K \Rightarrow -K - 1 = K \Rightarrow K = -1$$

$$w_a - \frac{b}{r} - K = K - \frac{r}{r} + 1 = w$$

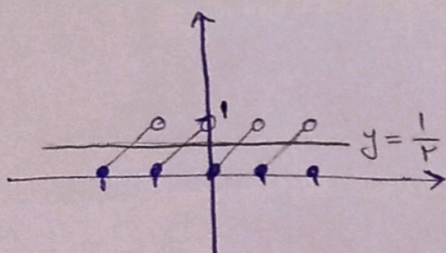
$$g(n) = \sqrt{4n+1} \quad f(n) = \sqrt{m-n} + n \quad D_{f \cap g} = \{-1, 0\}$$

$$Y_{m+1} \geq 0, \quad u \geq -1, \quad m-u \geq 0, \quad m \geq u \Rightarrow m = v, \quad f(u) = \sqrt{v-u} + u$$

$$f(r) - g(r) = r + n - \sqrt{1} = r + n - 2\sqrt{r} = 4\sqrt{r} \Rightarrow n = 1\sqrt{r} - r$$

$$m+n \approx N + \lambda \sqrt{P} - P = \omega + \lambda \sqrt{P}$$

$$y = (-1)^r (n - \{n\}) = \frac{1}{r} \Rightarrow y = (n - \{n\}) = \frac{1}{r} \quad \{-r, r\}$$



دارا، ۴۱ جواب است.