

$$x^2 + 2n + 1 + 9n^2 - 4n + 1 + m x^2 + n x + m n = \frac{(1+m)x^2}{(m+1)} + \frac{(n-4)n}{(n-4)} + 2 + m n$$

$$(x, y), (x, p+1) \rightarrow p+1 = -1 \rightarrow |p = -1| \Rightarrow \frac{x}{-1} + \frac{y}{-1} + \frac{p+1}{-1} = -1$$

$$(p+1, -1), (-9, p+k) \rightarrow -11+k = -1 \rightarrow |k = 10|$$

الف) $y = \sqrt{\frac{x-2}{x^2-2x^2-1}}$ $\rightarrow \frac{x-2}{x^2-2x^2-1}$

$x^2 = t \rightarrow t^2 - 2t - 1$ $\rightarrow (t-4)(t+2)$

$\sqrt{x} = \pm 2 \rightarrow x = 4$ $\sqrt{x} = -2 \rightarrow x = -4$

$D_f: (-\infty, -2) \cup (2, +\infty)$

ب) $f(n) = \frac{2x^2+1}{x^2-2[-x]}$

$\rightarrow f = 2[-x] \neq 0 \rightarrow 2[-x] \neq 0$

$[-x] \neq 0 \rightarrow x \neq (-3, -2)$

$D_f: \mathbb{R} - (-3, -2)$

الف) $f(n) = \sqrt{x(n^2-1)}$ $\rightarrow$ $\sqrt{1n+2}$ $\rightarrow$ $\sqrt{1n+2}$

$x(n^2-1) \geq 0$ $\rightarrow \frac{-1}{-1+1-1+1}$

$D_f: [1, +\infty)$

ب) $f(n) = \sqrt{|n-2| - n^2}$

$|n-2| - n^2 \geq 0$ $\rightarrow x \neq \pm 1$

$x \geq 2: x^2 - x + 2 \leq 0$ $\rightarrow x \leq 2: x^2 + x - 2 \leq 0$

$D_f: [-2, 1) \cup \{1\}$

$y = \frac{1}{|x-2|-1-k}$ $\rightarrow$ $|x-2|-1 \neq k \rightarrow |x-2| \neq k+1$

$|x-2|-1 \neq -k \rightarrow |x-2| \neq 1-k$

$x-2 \neq k+1 \rightarrow x \neq k+3$ $\rightarrow \frac{1}{k+3} = 1-k \rightarrow 2k = -2 \rightarrow |k = -1|$

$x-2 \neq -k-1 \rightarrow x \neq 1-k$ $\rightarrow \frac{1}{1-k} = 1-k \rightarrow 2k = 0 \rightarrow |k = 0|$

$x-2 \neq 1-k \rightarrow x \neq 3-k$ $\rightarrow \frac{1}{3-k} = 1+k \rightarrow 2k = 2 \rightarrow |k = 1|$

$x-2 \neq k-1 \rightarrow x \neq k+1$ $\rightarrow \frac{1}{k-1} = 1-k \rightarrow 2k = 0 \rightarrow |k = 0|$

$y = 2n - [n]$ $D_f: [-2, 2]$

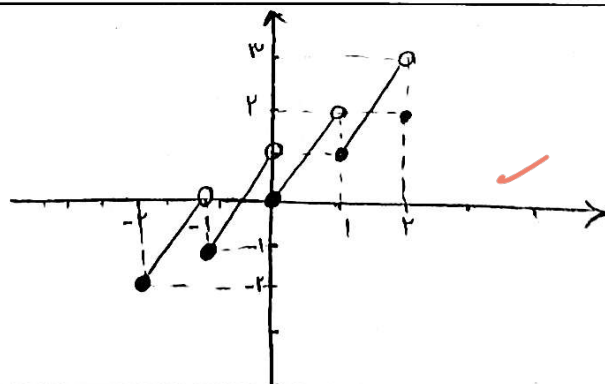
① $1 \leq x < 2 \rightarrow 2x-1 = y$

② $0 \leq x < 1 \rightarrow 2x-0 = y$

③ $-1 \leq x < 0 \rightarrow 2x+1 = y$

④ $-2 \leq x < -1 \rightarrow 2x+2 = y$

⑤ $x = 2 \rightarrow 2(2)-2 = 2$



$$f(n) = \frac{x^r - rn + r}{x-a} + b \quad a-b=?!$$

$$\rightarrow \frac{x^r - rx + r + b - ab}{x-a} \rightarrow \frac{x^r + (b-r)x + r-ab}{x-a}$$

$$\frac{(x-1)(x-a)}{x-a} + b = 1 \quad \boxed{ab=r} \quad \boxed{b=a}$$

$\rightarrow Q=ab \xrightarrow{a=r} \frac{(x-1)(x-r)}{x-r} + b = 1 \rightarrow b=1$
 $\rightarrow Q=ab \xrightarrow{a=1} \frac{(x-1)(x+1)}{x+1} + b = 1 \rightarrow b=1$

$$f(n) = \begin{cases} \frac{x^r + rn^r - n - r}{n^r - 1} & ; x \neq \pm 1 \\ \frac{ax + r}{x+b} & ; x = \pm 1 \end{cases}$$

$g(n) = x + \frac{r}{n}$
 (I), (II): $r-b-rb \neq 1 \rightarrow -rb = -r \rightarrow b = \frac{1}{r}$
 $\rightarrow b+C = r + \frac{1}{r} = \left\lfloor \frac{r}{r} \right\rfloor$
 ① $x=r \rightarrow f(n) = \frac{r^r + rn^r - n - r}{n^r - 1} = \frac{r^r - r}{r^r - 1} = \frac{1}{r} = r$, $g(n) = r + C \rightarrow r + C = r \rightarrow C = 0$
 ② $x=1 \rightarrow f(n) = \frac{a+r}{1+b} = \frac{1}{1+b} \rightarrow 1+rb = a+r \rightarrow a-rb = 1$ (I)
 $g(n) = 1 + \frac{r}{n} \xrightarrow{x=-1} f(n) = \frac{r-a}{b-1} = -1 \rightarrow r-a = b-a \rightarrow a+b = r$ (II)

$$f(n) = \sqrt{m-n} + n \xrightarrow{*} x \leq r \rightarrow \boxed{m=r}$$

$$g(n) = \sqrt{rn+r} \rightarrow D_g: rn+r \geq 0 \rightarrow rn \geq -r \rightarrow \boxed{x \geq -1}$$

$$f - g(r) = 4\sqrt{r} \rightarrow f - r\sqrt{r} = 4\sqrt{r} \rightarrow f(r) = 4\sqrt{r} \rightarrow f: \sqrt{r} \rightarrow n = 4\sqrt{r} - r$$

$$D_{f \circ g} = [-1, r] *$$

$$m+n = r + 4\sqrt{r} - r \rightarrow 4 + 4\sqrt{r}$$

$$y = \frac{1}{x} (x - [x]) = \frac{1}{x} [-r, r]$$

این تابع خطی جواب ندارد!

