

ب) به صورتی $h = 4$ به نیت $f(n) = (n+1)^2 + (3n-1)^2 + mn^2 + hn + mn = 4$

$$\Rightarrow n^2 + 2n + 1 + 9n^2 - 6n + 1 + mn^2 + hn + mn = 4 \Rightarrow (m+10)n^2 + (h-4)n + m+2 = 4$$

$$\Rightarrow m+2 = 4 \Rightarrow \boxed{m = -10} \text{ و } \boxed{h = 4} \quad -11 \quad h = -1 \Rightarrow \boxed{h = 10}$$

$\Rightarrow g(n) = \left\{ (1, \frac{1}{10}), (4, \frac{1}{4}), (\frac{1}{4}, -1), (-9, \frac{1}{4}) \right\}$ $\Rightarrow \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$

الف) $y = \sqrt{\frac{n-2}{n^2-2n^2-1}} \Rightarrow \frac{n-2}{(n^2-4)(n^2+2)} > 0$

$D_y = (-2, 2) \cup (2, +\infty)$

ب) $\frac{2n^2+1}{4-2[-n]} \Rightarrow 4-2[-n] = 0 \Rightarrow 2[-n] = 4 \Rightarrow [-n] = 2$

$\Rightarrow -n \in [2, 3) \Rightarrow n \in (-3, -2] \Rightarrow D_f = \mathbb{R} - (-3, -2]$

الف) $f(n) = \sqrt{n(n^2-1)} \Rightarrow n(n-1)(n+1) > 0 \Rightarrow \frac{-1}{-} \frac{0}{+} \frac{1}{+}$

$\Rightarrow D_f = [1, +\infty)$

ب) $\frac{\sqrt{|n-2|-n^2}}{|n|-1} \Rightarrow \frac{-2}{+} \frac{1}{-} \Rightarrow D_f = [-2, -1) \cup (-1, 1)$

$y = \frac{1}{||n-2|-1|-h} \Rightarrow ||n-2|-1| = h$

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

$h = 1$

الف) $y = 2n - [n] \Rightarrow$

نقطه‌ای

$$f(n) = \frac{n^r - f(n) + r}{n+a} + b = n \Rightarrow \frac{(n-1)(n-r)}{n+a} + b = n$$

$$\Rightarrow \text{I) } a = -1 \Rightarrow b = r \quad \text{II) } a = -r \Rightarrow b = 1$$

$$\Rightarrow \text{I) } a - b = -1 - r = -r \quad \text{II) } a - b = -r - 1 = -r$$

$$f(n) = \begin{cases} \frac{n^r + r n^r - n - r}{n^r - 1} & ; n \neq \pm 1 \\ \frac{a n + r}{n + b} & ; n = \pm 1 \end{cases} \quad y(n) = n + c \quad \begin{matrix} b=1 \Rightarrow b=1 \\ b=r \Rightarrow b=r \end{matrix}$$

$\boxed{p+c = \frac{1+r}{r} = \frac{a}{r}}$

$$\frac{n^r(n+r) - 1(n+r)}{n^r - 1} = \frac{(n^r - 1)(n+r)}{(n^r - 1)} = n+r = n+c \Rightarrow c = r$$

$$n=1 \rightarrow \frac{a+r}{b+1} = r \Rightarrow b+r = a+r$$

$$n=-1 \rightarrow \frac{-a+r}{b-1} = 1 = b-1 = r-a$$

$\mathbb{R} \times \mathbb{R}$

$$D_{f \times g} = [-1, v] \Rightarrow D_f \cap D_g = [-1, v] \quad D_g = [-1, +\infty)$$

$$\Rightarrow D_f = (-\infty, v] \quad \xrightarrow{\sqrt{m-n}} \Rightarrow m=v$$

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

$$\sqrt{m-r} + n = r\sqrt{r} \Rightarrow r+n = r\sqrt{r} \quad n = r\sqrt{r} - r$$

$$\Rightarrow m+n = r\sqrt{r} - r + v = r\sqrt{r} + v$$

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

$$D = [-r, r]$$

