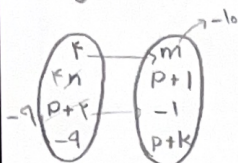


$$f(n) = n^2 + 2n + 1 + 4n^2 - 4n + 1 + mn^2 + n + mn = (1+m)n^2 + (n-4)n + 2 + mn$$

تابع ثابت است پس $n=4, m=-10$

$g(m)$



$$p+1 = -10$$

$$p = -11$$

$$p+k = -1$$

$$k = -1 + 11 = 10$$

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

۱

الف) $\sqrt{\frac{x-2}{(x-2)(n+2)(n^2+2)}}$ $\frac{-2}{-1} + \frac{2}{1} +$ $D_f = x > 2$

ب) $4 - 2[-n] \neq 0$

$\mathbb{R} - (-3, -2]$

$4 = 2[-n] \quad [-n] = 2 \quad 2 \leq -n < 3$
 $-3 < n \leq -2$

۲

الف) $\frac{x}{-1} + \frac{1}{-1} + \frac{1}{-1} +$ به ازای x های متناهی منفرجه می شود و ۰ و ۱ نه جواب دلگسره شود.
 $\mathbb{R} = [1, +\infty) \cup \{0, -1\}$

ب) $|n-1| - n^2 \geq 0 \quad \begin{cases} n \geq 2 \rightarrow -n^2 + n - 2 \Delta < 0 \text{ و } \Delta < 0 \\ n < 2 \rightarrow -n^2 - n + 2 \quad \frac{-2}{-1} + \frac{1}{-1} = -1 \end{cases}$
 $|n-1| \neq 0 \quad n \neq \pm 1$
 $D_f = [-2, 1) - \{-1\}$

۳

$||n-2|-1| - k = 3 \Rightarrow ||n-2|-1| = k$

$|n-2| = 9 \Rightarrow |9-1| = k \rightarrow 9-1 = k$

$\rightarrow 9-1 = -k \rightarrow |n+1| = -k+1 \rightarrow n = -k+1+2$
 $\rightarrow n = +k+1+2$

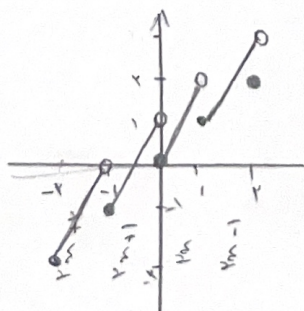
$k=1 \rightarrow t=0 \rightarrow n=2$

$\rightarrow t=2 \rightarrow n=0, 4$

۳ جواب

هر سری ۴ جواب به دست می آید و در اینجای ۵
 $9=0$ باشد

۴



$-2 \leq n < -1 \quad 2n+2$
 $-1 \leq n < 0 \quad 2n+1$
 $0 \leq n < 1 \quad 2n$
 $1 \leq n < 2 \quad 2n-1$
 $2 \leq n < 3 \quad 2n-2$

۵

$$\frac{x^r - f_m + r}{x+a} + b$$

$$f(0) = \frac{r}{a} + b = 0 \xrightarrow{\times a} r + ab = 0$$

$$ab = -r$$

$$f(1) = \frac{1 - \cancel{f} + r}{1+a} + b = 1 \rightarrow b = 1$$

$$a = -r$$

$$a - b = -r - 1 = -f$$

$$\frac{(n-1)(n-r)}{n+a} + b$$

$$a = -1 \rightarrow b = r$$

$$a - b = -1 - r = -f$$

$$a = -r \rightarrow b = 1$$

$$-r - 1 = -f$$

6

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

$$n \neq \pm 1$$

$$(n+1)(n+r)$$

$$\frac{(n^r - 1) + (r n^r - n - 1)}{n^r - 1} = \frac{(n-1)(n^r + n + 1) + (n-1)(r n + 1)}{n^r - 1} = \frac{(n-1)[n^r + r n + r]}{(n-1)(n+1)} = \frac{n+r}{n+1}$$

$$c = r$$

7

$$g(1) = 1 + r = r$$

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

$$a = r$$

$$b = 1$$

$$b + c = 1 + r = r$$

$$g(-1) = -1 + r = 1$$

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

$$b - 1 = -a + r$$

$$b = f_m \xrightarrow{n=1} b = f$$

$$r a = f x' \rightarrow r a = f$$

$$r(0) + r k - r = 0 \rightarrow r k = r$$

$$r k = -r$$

$$k = -1$$

$$r a - \frac{b}{r} - k = f - \frac{f}{r} - (-1) = r$$

نقطه نقطه در تابع مستقیم
به پارامتر n از این برد

8

$$(\sqrt{r+m+r})(\sqrt{m-n}+n)$$

$$r+m+r > 0$$

$$m > -1$$

$$m-n > 0$$

$$m > n$$

$$f(r) = r+n \quad g(r) = r\sqrt{r}$$

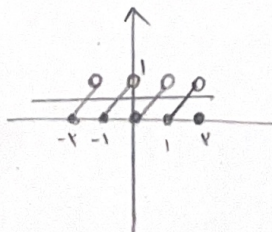
$$f-g(r) = r+n-r\sqrt{r} = 4\sqrt{r}$$

$$n = 4\sqrt{r} - r$$

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

9

$$n - [n] = \frac{1}{r}$$



6K

10