

روزانه سرالطاف (بزرگوار خست) تالیف ۱۱

$$L(n) = \begin{cases} n^3 - 2 & n > a \\ 12n - 20 & n \leq a \end{cases}$$

$$a^3 - 2 > 12a - 20 \rightarrow a^3 - 12a + 18 > 0 \rightarrow (a^3 + 12a - 4a^2 - 1) - 22a + 22 + 4a^2 = 0$$

$$(a-2)^3 + 4(a^2 - 2a + 2) = 0 \rightarrow (a-2)^3 + 4(a-2)^2 = 0$$

$$(a-2)^2(a+2) = 0 \rightarrow a = -2 \quad a = 2 \quad \frac{-2 \pm 2}{-1 \pm 1}$$

$$L(n) = 12n - 20 \quad F(r) = 2$$

$$F(U) = 12n - 20 = 11$$

$$y = 12n + k \quad n = \frac{y-k}{12} \quad y = \frac{n-k}{12}$$

$$\frac{y-k}{12} = 2 \quad y-k = 24 \quad -10 = k$$

$$F(L(n)) = 12(12n - 20) - 10 = 144n - 250$$

$$A(r, a)$$

$$F(n) = \frac{an}{n-1}$$

$$n = \frac{ay}{y-1}$$

$$ny - n = ay \quad y(n-a) = n \quad y = \frac{n}{n-a}$$

$$a = \frac{ra}{a} = r, a \neq 0$$

$$F = \{(r, 2)(2, 1)(1, 4)(4, 9)\}$$

$$g = \{(r, 2)(1, 4)(4, 9)(9, 1)\}$$

$$F \circ F^{-1} = \{(0, 0)(1, 1)(2, 2)(3, 3)\}$$

$$g \circ g^{-1} = \{(1, 1)(2, 2)(3, 3)(4, 4)\}$$

$$\begin{aligned} a &\rightarrow r \rightarrow a \\ v &\rightarrow 2 \rightarrow v \\ r &\rightarrow v \rightarrow r \\ 4 &\rightarrow a \rightarrow 4 \end{aligned}$$

$$\begin{aligned} r &\rightarrow a \rightarrow r \\ 2 &\rightarrow v \rightarrow 2 \\ v &\rightarrow r \rightarrow v \\ 9 &\rightarrow 4 \rightarrow 9 \end{aligned}$$

$$F \circ g^{-1} = \{(r, 2)(2, 1)(1, 4)(4, 9)\}$$

$$g \circ F = \{(r, 2)(2, 1)(1, 4)(4, 9)\}$$

$$\begin{aligned} r &\rightarrow r \rightarrow a \\ 4 &\rightarrow 1 \rightarrow a \\ a &\rightarrow 9 \rightarrow 4 \end{aligned}$$

$$\begin{aligned} r &\rightarrow a \rightarrow 9 \\ r &\rightarrow v \rightarrow a \\ v &\rightarrow r \rightarrow v \\ 9 &\rightarrow 4 \rightarrow 1 \end{aligned}$$

$$F = \{(r, 2)(2, 1)(1, 4)(4, 9)\}$$

$$g = \{(r, 1)(1, 2)(2, 3)(3, 4)\}$$

$$h = \{(1, 2)(2, 3)(3, 4)(4, 1)\}$$

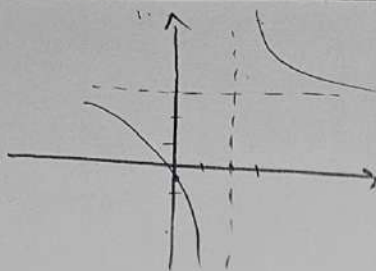
$$\frac{h}{F \circ g^{-1}} = \frac{\{(1, 2)(2, 3)(3, 4)(4, 1)\}}{\{(0, 0)(1, 1)(2, 2)(3, 3)\}} = \{(1, 1)(2, 2)(3, 3)(4, 4)\}$$

$$\begin{aligned} 1 &\rightarrow 2 \rightarrow 3 \\ 2 &\rightarrow 3 \rightarrow 4 \\ 3 &\rightarrow 4 \rightarrow 1 \end{aligned}$$

$$y = \frac{r_{n+1}}{n-r}$$

$$r_{n+1} = r$$

$$r_{n+1} = r$$



نقطة تقاطع

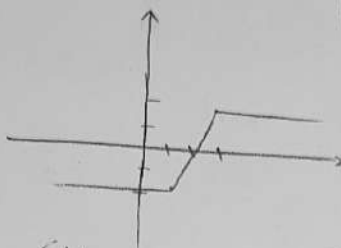
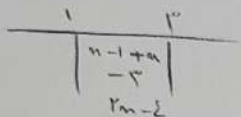
$$n = \frac{r_{n+1}}{y-r} \rightarrow \frac{r_{n+1}}{y-r} = n$$

$$y = \frac{-r_{n+1}}{n-r} = \frac{r_{n+1}}{n-r}$$



-4

$$L(n) = |n-1| - |n-r|$$



$$[a, b] = [1, r]$$

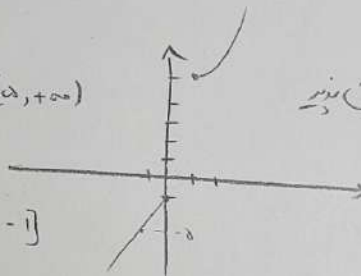
نقطة تقاطع

-5

$$y = r_{n-2} \xrightarrow{O_{ab}} n = ry - 2 \rightarrow \frac{n+2}{r} = y$$

$$L(n) = \begin{cases} n^r + 2 & n \geq 1 \quad IR = [a, +\infty) \\ \varepsilon n - 1 & n < 1 \end{cases}$$

$$IR = (-\infty, -1]$$



نقطة تقاطع

-6

$$y = n^r + 2$$

$$n = y^{\frac{1}{r}} + 2 \rightarrow \sqrt[r]{n-2} = y$$

$$y = \varepsilon n - 1 \quad n = \varepsilon y - 1 \rightarrow \frac{n+1}{\varepsilon} = y$$

$$L(n) = \begin{cases} \sqrt[r]{n-2} & n \geq 2 \\ \frac{n+1}{\varepsilon} & n < -1 \end{cases}$$

نقطة تقاطع

نقطة تقاطع

5

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

$$L^{-1}(n) = \frac{a+b}{r_{n+d}}$$

$$L^{-1}(b) = ?$$

$$\frac{n^r + r_{n+1} - (n^r + 1 + r_{n+1} + r_{n+1})}{n+r} = \frac{-r_{n+1}}{n+r} \rightarrow \frac{-4n-r}{r_{n+4}}$$

$$a = -4 \quad b = -r$$

$$d = 4$$

$$L^{-1}(r) = \frac{-4(-r) - r}{r(-r) + 4} = \frac{1}{r} = d$$

-10

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

$$n = \frac{y}{y^r + 1}$$

$$ny^r + n = y \rightarrow y = \frac{1 \pm \sqrt{1 - 4n^r}}{2n^r} \rightarrow \text{نقطة تقاطع}$$

$$ny^r - y + n = 0$$

$$\frac{-\frac{1}{r}}{-1} + \frac{\frac{1}{r}}{-1} = -\frac{1}{r}$$

$$L^{-1}(n) = \frac{1 + \sqrt{1 - 4n^r}}{2n^r}$$

$$O_{L^{-1}(n)} = \left[\frac{1}{r}, \frac{1}{r} \right] - \{0\}$$

5

