

$$r f(a) = f(-r) + a$$

(1)

$$r(a+1)(a+r) = ra + r(-r) + a$$

$$1ra + 1a = ra - r$$

$$10a = -1a \Rightarrow a = \frac{-1a}{10} = \frac{-9}{9}$$

$$f(u) = \sqrt{u} + \frac{1}{\sqrt{u}} + r \Rightarrow f(r+\sqrt{u}) = \frac{1}{\sqrt{r+\sqrt{u}}} + \sqrt{r+\sqrt{u}} + r$$

(2)

$$\left. \begin{aligned} & \frac{1}{\sqrt{r+\sqrt{u}}} = 1 + 1 + r(\sqrt{r+\sqrt{u}}) \\ & f(r+\sqrt{u}) = \frac{1}{\sqrt{r+\sqrt{u}}} + \sqrt{r+\sqrt{u}} + r \end{aligned} \right\} \text{ جواب } f(\sqrt{u}) =$$

$$\left. \begin{aligned} & \frac{1}{\sqrt{r+\sqrt{u}}} = 1 + 1 + r(\sqrt{r+\sqrt{u}}) \\ & \sqrt{r+\sqrt{u}} + \sqrt{r+\sqrt{u}} + r(\sqrt{r+\sqrt{u}}) = 4 \Rightarrow \sqrt{r+\sqrt{u}} = 1 \end{aligned} \right\}$$

$$r f(u) - r f(-u) = \varepsilon u^r - u \times r \quad f f(u) - 4 f(-u) = 9u^2 - 4u \quad (3)$$

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$$r f(-u) - r f(u) = \varepsilon u^r + u \times r \quad 4 f(-u) - 9 f(u) = 12u^2 + 32u$$

$$\begin{aligned} -\alpha f(u) &= 20u^2 + u \\ f(u) &= \frac{20u^2 + u}{\alpha} \end{aligned}$$

$$(n+r) f(u) - r f(u+r) = f u^r - m u + r m - 1 \quad u=0 \Rightarrow r$$

(5)

$$\begin{aligned} x^r \rightarrow r f(0) &= r m - 1 & -4 f(0) &= -9m + r \\ 4 f(0) &= 2m + 1 & 4 f(0) &= 2m + 1 \end{aligned} \Rightarrow f(0) = \frac{r m - 1}{r}$$

$$1 - r m = 0 \Rightarrow m = \frac{9}{r} \quad \left. \begin{aligned} & \frac{r(\frac{9}{r}) - 1}{r} = \frac{9 - 1}{r} = \frac{8}{r} \end{aligned} \right\}$$

$$f(u) + f(\frac{1}{u}) = \frac{r u^r - 12u + r}{u} \quad u=-1 \quad r f(-1) = \frac{r + 12 + r}{-1}$$

(6)

$$f(-1) = \frac{-12}{r} = -9$$

$$f(u) = (u-1)\sqrt{1-u} \Rightarrow Df = (-\infty, +1] \quad (7)$$

$$g(u) = -\sqrt{(1-u)^2} \rightarrow (u-1)\sqrt{1-u} \quad \text{تابع زوج است}$$

محدوده

$$f(u) = u\sqrt{u} \rightarrow \text{تابع فرد}$$

(8)

$$g(u) = \sqrt{u^3} \rightarrow \text{تابع فرد}$$

$$Df_{f \circ g} = [0, +\infty)$$

$$f(u) = [\sqrt{u} - \lfloor \sqrt{u} \rfloor]$$

(9)

$$g(u) = \sqrt{u - \lfloor u \rfloor}$$

$$f(u) \rightarrow Df = u \geq 0$$

$$\Rightarrow Df \circ g = u \geq 0$$

$$g(u) \rightarrow Dg = u \geq 0$$

محدوده ها نیز یکی است

$$\left[\sqrt{\frac{1}{2}} - \lfloor \sqrt{\frac{1}{2}} \rfloor \right] \rightarrow \left[\frac{1}{2} - 0 \right] = 0$$

$$\sqrt{\frac{1}{2}} - \lfloor \frac{1}{2} \rfloor = \sqrt{0} = 0$$

محدوده

$$\left(\frac{f \circ g}{f - g} \right)(1) = \frac{r+1}{r-1} = \frac{r}{1} = r$$

(10)

$$\left(\frac{f \circ g}{f - g} \right)(r) = \frac{r+r}{(r-r)} = \frac{2}{0} \Rightarrow \text{توابع لانه ای}$$

$$f(0)g(-1) = (0) \times (1) = 0$$

$$g(u) = f(ru-1) \Rightarrow u=r \rightarrow g(r) = f(r) \times$$

(11)

$$g(u) = (0, r)$$

$$g(-1) = f(-r) \times$$

$$g(0) = f(-1) = r \checkmark$$

$$g(-r) = f(-1) \times$$

$$g(r) = f(1) \times$$

$$h(u) = f(f(u))$$

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$$u=r \Rightarrow h(r) = f(r) \checkmark$$

$$u=-1 \Rightarrow h(-1) = f(1) \times$$

$$u=0 \Rightarrow h(0) = f(0) \checkmark$$

$$u=-r \Rightarrow h(-r) = f(r) \checkmark$$

$$u=r \Rightarrow h(r) = f(r) \checkmark$$

$$h(u) = \left[(r, 1), (0, r), (r, 1) \right]$$

$$g(r-1)$$