

آبشار آبریز ۱۱۱ - پارک آبریز (مختار آباد)

$$\hookrightarrow f(\sqrt{r}) = \sqrt{(\sqrt{r})^2 + 1} = \sqrt{r+1}$$

$$\begin{aligned} & \text{b) } f(x) = [x] \rightarrow f(-r - \sqrt{r}) = [-r - \sqrt{r}] = \boxed{-r} \checkmark \text{ (OK)} \\ & g(x) = \frac{x}{1-x} \rightarrow \frac{\sqrt{r}}{1-\sqrt{r}} \times \frac{1+\sqrt{r}}{1+\sqrt{r}} = \frac{r+\sqrt{r}}{-1} = -r - \sqrt{r} \\ & f(g(\sqrt{r})) = c \end{aligned}$$

$$g(x) = x \sqrt{1-x^2} = \frac{\sqrt{x}}{x} \sqrt{1-\frac{1}{x}} = \left(\frac{\sqrt{x}}{x}\right) \left(\frac{\sqrt{x}}{x}\right) = \underline{\underline{\frac{1}{x}}}$$

c) $g \circ g(x) = \{(x, 1)(1, 4)(4, 1)\}$

$$f \circ g(x) \rightsquigarrow \underbrace{f(g(x))}_{x} = x \quad \begin{array}{l} g(x) = x \rightarrow a = x \\ g(y) = 1 \rightarrow b = y \end{array} \rightarrow (x, y)$$

$$g(-1) = 1^2(-1) - 1 = -\frac{1}{2}$$

$$a = \begin{cases} 1 & \rightarrow b = 1 \Rightarrow f(-1) = -1 \\ -1 & \rightarrow b = -1 \Rightarrow f(-1) = -1 \end{cases}$$

$$g(\lambda) = \frac{1}{\lambda^2 - \kappa_1} \rightarrow Dg \rightarrow IR - \lambda^0, \kappa_1$$

$$g \circ f(x) \Rightarrow D_{g \circ f} = \{x \in D_f : f(x) \in D_g\} \rightarrow \{x \in \mathbb{R} : \sqrt{x+|x|} \neq 0, 1\} \Rightarrow D_{g \circ f} = (0, +\infty) - \{1\}$$

$$f(\lambda) = \sqrt{1-\lambda^2} \rightarrow D_f = [-1, 1] \quad R_f = \rightarrow \begin{cases} -\frac{b}{ra} = 0 \\ 1 \end{cases} \quad \sqrt{(-\infty, 1]} = [0, 1]$$

انوار کتب خانہ (01)
(سوال)

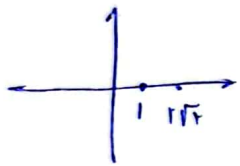
$$g(\lambda) = \sqrt{\lambda} \rightarrow D_g = [0, +\infty)$$

$$D_{(f+g)_{ot}} = \rightarrow \left\{ \lambda \in \underbrace{D_g \cap D_f}_{[0, 1]} \mid \underbrace{f(\lambda)}_{[0, 1]} \in \underbrace{D_g \cap D_f}_{[0, 1]} \right\} \Rightarrow D_{(f+g)_{ot}} = [0, 1]$$

$$ii) f\left(\frac{r\lambda+1}{\lambda-1}\right) = r\lambda+1 \rightarrow \frac{r\lambda+1}{\lambda-1} = t \rightarrow \frac{r(t+1)}{t-1} = \lambda \rightarrow f\left(\frac{r(t+1)}{t-1}\right) = \frac{\lambda t + r + \omega t - \omega}{t-1} \Rightarrow \frac{13t-11}{t-1} = f(t) \quad (\text{سوال})$$

$$b) f\left(\lambda + \frac{1}{\lambda}\right) = \lambda^r + \frac{1}{\lambda^r} \rightarrow \left(\lambda + \frac{1}{\lambda}\right)^r = t^r \rightarrow \lambda^r + \frac{1}{\lambda^r} + r \underbrace{\left(\lambda + \frac{1}{\lambda}\right)}_t = t^r \rightarrow \lambda^r + \frac{1}{\lambda^r} = t^r - rt \Rightarrow f(\lambda) = \frac{13\lambda-11}{\lambda-1}$$

$$f(t) = t^r - rt \rightarrow f(\lambda) = \lambda^r - r\lambda$$



$$g(2\sqrt{\lambda}) = 0 \rightarrow \lambda\sqrt{\lambda} = 2\sqrt{1} \rightarrow \lambda = 2$$

$$g(\frac{1}{f(\lambda)}) \rightarrow \lambda\sqrt{\lambda} = 1 \rightarrow \lambda = 1$$

$$\rightarrow \boxed{r-1=1}$$

(سوال)