

رینا سقای

دینا سقای

سوال 1 :

نک: $f(n) \geq n-1$

$$f(n) = \begin{cases} n-1 & n \geq 0 \\ n+1 & n < 0 \end{cases}$$

$$\begin{cases} n-1 \geq n-1 \\ n \geq 0 \end{cases} \checkmark$$

$n \geq 0$

$$f(n+1) \geq n-1$$

$n < 0$

$$n+1 \geq -1 \rightarrow n \geq -2 \checkmark$$

$$D_{g(x)} = [0, +\infty) \cup \left[-\frac{1}{f}, 0\right) = \left[-\frac{1}{f}, +\infty\right)$$

$$\frac{11x(2x+1) + 3(11x^2+1)}{(2x+1)^2} = \frac{11x(2x+1) + 3(2x+1)(2x^2-2x+1)}{(2x+1)^2} \quad \text{سوال 2}$$

$$= \frac{(2x+1)(11x^2 - 4x + 11x + 1)}{(2x+1)^2} = \frac{2(2x+1)^2 A \frac{1}{2x+2n+1} (2x+1)^2}{(2x+1)^2}$$

$$= \frac{2x(2x+1)^2}{(2x+1)^2} = \frac{2}{2x+1}$$

$$D_f = \mathbb{R} - \left\{-\frac{1}{f}\right\}$$

$$f(x) = \begin{cases} \frac{x(x^2-1) + 2(x^2-1)}{x^2-1} = \frac{(x^2-1)(x+2)}{x^2-1} & x \neq \pm 1 \\ = n+2 \rightarrow c & \\ \frac{ax+2}{x+b} & \end{cases} \quad \text{سوال 3}$$

$$\frac{a+2}{b} = 2 \rightarrow a+2=2b \rightarrow a=2b-2$$

$$n = \pm 1$$

$$\frac{-a+2}{-1+b} = 1 \rightarrow -a+2 = -1+b$$

$$-2b+2 = -1+b$$

$$3b = 3 \rightarrow b = 1$$

$$g(x) = x+2$$

$$g(1) = 3$$

$$g(-1) = 1$$

$$a = \frac{1 \cdot 2 - 1}{1} = \frac{1}{1} = 1$$

$$b+c = \frac{1}{1} + 2 = 3$$

$$g(n) = \frac{(n-1)(n+1)}{(n-1)^2} = \frac{n+1}{n-1} \quad \text{حل 3-}$$

$$f(n) = \frac{n+1}{n-1} \quad \begin{matrix} a = -1 \\ b = 1 \\ c = 1 \end{matrix} \quad \left. \begin{matrix} a = -1 \\ b = 1 \\ c = 1 \end{matrix} \right\} a+b+c=0$$

$$f(n+1) = (n+1-1)^2(n+1+1) = n(n+2)^2 \quad \text{حل 2-}$$

$$f(1-x) = (1-x-1)^2(1-x+1) = -x(x+2)^2$$

$$g(n) = x(x-2)^2 - x(n+2)^2 = x(x^2 - 4x + 4 - n^2 - 4n - 4) = x(x^2 - 4x - n^2 - 4n)$$

$$g(n) = -4n^2$$

$$1-2x = -1 \rightarrow 2x = 2 \rightarrow x = 1$$

حل 4-

$$x=1 \rightarrow f(-1) = 1\sqrt{1} = 1 \quad ? \quad f(-1) + f(n) = 2$$

$$\frac{1-x=2}{-1-x=2} \rightarrow x=-1 \quad f(x) = \sqrt{-1} + 1 = 1$$

$$x + \sqrt{x} = 4 \xrightarrow{\sqrt{x}=t} t^2 + t - 4 = 0$$

حل 5-

$$(t+2)(t-2) = 0 \rightarrow t = 2 = \sqrt{x} \rightarrow x = 4$$

$$f(4) = (2)^2 + 2(2) = 4 + 4 = 8$$

$$f(x-1) = (n-1)((n-1)^2 + 1) = (n-1)(n^2 - 2n + 2)$$

حل 6-

$$f(n) = n(n^2 + 1)$$

$$f(1-x) = (1-n)((1-x)^2 + 1) = (1-n)(1 - 2x + x^2 + 1) = (1-n)(2 - 2x + x^2)$$

$$f(n-1) + f(1-n) = (n^2 - 2n + 2)(1-n + n - 1) = 0$$

$$D_f = n \geq \frac{ra}{\varepsilon} \quad \left\{ \begin{array}{l} D_{f \cap g} = \frac{ra}{F} \leq n \leq \frac{b}{\varepsilon} \end{array} \right. \quad -9 \text{ حل}$$

$$D_g = \frac{b}{F} \geq n$$

$$\frac{b}{\varepsilon} = 1 \rightarrow b = \varepsilon$$

$$\frac{ra}{\varepsilon} = 1 \rightarrow a = \frac{\varepsilon}{F}$$

$$f(n) = \sqrt{rn - \varepsilon} + K - 1$$

$$g(n) = \sqrt{\varepsilon - \varepsilon n} + rK$$

$$f(1) = \sqrt{0} + K - 1 \rightarrow rf(1) = rK - r$$

$$g(1) = \sqrt{\varepsilon - \varepsilon} + rK = rK$$

$$rf(1) - g(1) = rK - r - rK = -r \rightarrow -r = -rK \rightarrow K = 1$$

$$r\left(\frac{\varepsilon}{F}\right) - \frac{r}{F} - (-1) = r - r + 1 = 1$$

$$D_f = x \leq m \quad \left\{ \begin{array}{l} D_{f \cap g} = -1 \leq n \leq m \end{array} \right. \quad -10 \text{ حل}$$

$$D_g = n \geq -1$$

$$f(n) = \sqrt{V - x} + n$$

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

$$f(r) - g(r) =$$

$$\sqrt{V - r} + r - \sqrt{r} = 4\sqrt{r} \rightarrow r = 16 - r$$

$$m + n = 16 - r + V = 16 + V$$