

$$f(1-\sqrt{n}) \xrightarrow{f(x)=1} -1 \leq 1-\sqrt{n} \rightarrow n \geq 1 \rightarrow f(-1) = \sqrt{-1} = \textcircled{\text{E}}$$

$$\xrightarrow{f(x)=x} \sqrt{-1} + x = -1 + x = \textcircled{\text{F}}$$

$$E+1 \leq \textcircled{\text{D}}$$

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$$\sqrt{n} = z$$

$$n + \sqrt{n} = 4 \rightarrow z^2 + z - 4 = 0$$

$$(z-1)(z+1) \begin{cases} z=1 \rightarrow \sqrt{n}=1 \rightarrow n=1 \\ z=-1 \rightarrow \sqrt{n}=-1 \rightarrow n=1 \end{cases}$$

$$f(4) = \sqrt{4} + 12 = 2 + 12 = 14$$

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$$f(n-1) + f(1-n) = \rightarrow$$

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

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

$$\Rightarrow \textcircled{\text{D}}$$

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$$f(x) = ax - \frac{a}{x} \geq 0 \rightarrow x \geq \frac{a-1}{x} \rightarrow D = \left[\frac{a-1}{x}, \infty \right)$$

سرون ارتباط

$$g(x) = b - \frac{b}{x} \geq 0 \rightarrow x \leq \frac{b+1}{x} \rightarrow D = (-\infty, \frac{b+1}{x}]$$

$$\text{مثلاً } x=1 \in \left[\frac{a-1}{x}, \frac{b+1}{x} \right] \Rightarrow \frac{a-1}{1} \leq \frac{b+1}{1} \Rightarrow a-1 \leq b+1$$

$$\rightarrow (1 \in D) \Rightarrow (1 \in D) \Rightarrow (1 \in D) \Rightarrow a-1 \leq b+1$$

$$\rightarrow f(a+1) = \varepsilon - (a-1) = \varepsilon \varepsilon = 0 \rightarrow f(1) = \sqrt{0} = 0 \rightarrow b+1 \leq \varepsilon \rightarrow b - \varepsilon + 1 \leq 0$$

$$\begin{cases} a-1 \leq b+1 \\ b+1 \leq \varepsilon \\ \varepsilon - (a-1) = 0 \end{cases}$$

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$$x_m + x \geq 0 \rightarrow x \geq -1 \quad D_f = [1, \infty) \rightarrow D_g = m - x \geq 0 \rightarrow x \leq m \rightarrow (-\infty, m]$$

$$D_{f \times g} = D_f \cap D_g \rightarrow (-\infty, m] \cap [1, \infty) = [1, m] = [1, \sqrt{1}] = \boxed{1}$$

$$(f-g)(x) = 4\sqrt{x} = f(x) - g(x) = 4\sqrt{x} \begin{cases} g(x) = \sqrt{x} \Rightarrow \sqrt{x} = 4\sqrt{x} \\ f(x) - 4\sqrt{x} = 4\sqrt{x} \Rightarrow f(x) = 8\sqrt{x} \end{cases}$$

$$f(x) = \sqrt{m-x} \quad h = 4\sqrt{x} = 1+h \rightarrow h = 4\sqrt{x} - 1 \rightarrow m-h = 4\sqrt{x} - 1 \rightarrow m = 4\sqrt{x} - 1 + 1 = 4\sqrt{x}$$

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

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

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

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

در واقع

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

چون توان 2 دارد و منفی رو میخوره ت

9. اشتراک دامنه f و g فقط a=1 است پس:

$$D_f = [\frac{r_a}{r}, +\infty) \quad D_g = (-\infty, \frac{b}{r}] \xrightarrow{\cap} \{1\}$$

$$\frac{r_a}{r} = \frac{b}{r} = 1 \rightarrow a = \frac{r}{r} \quad b = r$$

$$2f(1) - g(1) = K \rightarrow 2K - 2 - 3K = K \rightarrow K = -1$$

$$r_a - \frac{b}{r} = K = 1$$