

۱۹۱۵ آفرین

کیمیای برادی - تکلیف شماست

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

$$x > F$$

$$g(x) = \sqrt{x - F\sqrt{x - F}}$$

$$f(x) + g(x) = a + b\sqrt{x + c}$$

$$\left(\frac{a+b}{c}\right) = ? \quad z = \sqrt{x - F} \rightarrow x - F = z^2 \rightarrow x = z^2 + F$$

$$f(x) = \sqrt{z^2 + F + Fz} \rightarrow \sqrt{z^2 + Fz + F} \rightarrow f(x) = |z + F| \xrightarrow{z \geq F} f(x) = z + F$$

$$g(x) = \sqrt{z^2 + F - Fz} \rightarrow \sqrt{z^2 - Fz + F} \rightarrow g(x) = |z - F| \xrightarrow{z \geq F} g(x) = z - F$$

$$x \geq F \rightarrow x \geq 1 \rightarrow \sqrt{x - F} \geq \sqrt{F} = F \rightarrow z \geq F$$

$$f(x) + g(x) = z + F + z - F = 2z \rightarrow 2\sqrt{x - F} \rightarrow a + b\sqrt{x + c}$$

$$a = 0, b = F, c = -F$$

$$\frac{a+b}{c} = \frac{0+F}{-F} = -\frac{1}{F}$$

$$f(x) = \frac{x + F}{x^2 - Fx + F} \quad / \quad g(x) = \{ (F, 1), (1, 0), (F, 0), (0, F) \} \rightarrow g(x) \neq 0$$

$$\frac{a}{F} = ? \quad (x - F, x - 1) \rightarrow F, 1 \rightarrow \text{مقادیر صحیح} \quad x = 0 \text{ یا } F \quad \text{از جایگاه اول و دوم}$$

$$(I) x = 0 \rightarrow f(0) = \frac{F}{F} = 1, g(0) = F \rightarrow \frac{F}{1} = F$$

$$(II) x = F \rightarrow f(F) = \frac{F}{-1} = -F, g(F) = 1 \rightarrow -\frac{1}{F}$$

$$x \rightarrow \frac{a}{F} = \{ (0, F), (F, -\frac{1}{F}) \}$$

$$f(x) = \{ (F, 1), (1, 0), (F, 0), (0, F) \}$$

$$g(x) = \{ (-F, 1), (1, -1), (F, 1), (-1, 0) \}$$

$$f(x) = \{ (\frac{1}{F}, F), (\frac{F}{F}, -1), (F, F), (\frac{1}{F}, 0) \}$$

$$x \in \{ 1, F, F, -1 \}$$

$$x \in \{ \frac{1}{F}, \frac{F}{F}, F, -\frac{1}{F} \}$$

$$f(x^2) = \{ (-F, F), (-1, F), (F, F), (F, F) \}, (-\sqrt{F}, -1), (\sqrt{F}, -1)$$

$$x^2 \in \{ 1, F, F, -1 \} \quad x^2 = F \rightarrow x = \pm\sqrt{F}$$

$$x^2 = 1 \rightarrow x = \pm 1$$

$$x^2 = F \rightarrow x = \pm\sqrt{F}$$

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ج: $\varphi(x) + 1$

$$\begin{aligned} x \rightarrow x = -1 &\rightarrow \varphi(1) + 1 = 1 \quad (-1, 1) \\ x = 1 &\rightarrow \varphi(1) + 1 = 1 \quad (1, 1) \\ x = 3 &\rightarrow \varphi(9) + 1 = 4 \quad (3, 9) \\ x = -1 &\rightarrow \varphi(1) + 1 = 1 \quad (-1, 1) \end{aligned} \left\{ (-1, 1), (1, 1), (3, 9), (-1, 1) \right\}$$

د: $\frac{p+q}{2}$ $\rightarrow$ $\frac{1+3}{2} = 2$ $\{ (1, 3), (3, 1) \}$

$f(x) = \{ (1, 1), (3, 9), (-1, 1) \}$ $x = -1, 1, 3$

$g = \{ (1, 1), (3, 9), (-1, 1), (1, 1), (3, 9) \}$

$h = f + g \rightarrow$

$h(1) \rightarrow \varphi(1) + 1 = 2$

$h(3) \rightarrow \varphi(9) + 1 = 4$

$h(1) \rightarrow \varphi(1) + 1 = 2$

$h = \{ (-1, 1), (3, 9), (1, 1) \}$

$f(x) = \sqrt{x^2 - x}$ $g(x) = [x] + [-x]$

$x(x-1) \geq 0 \rightarrow x \geq 1 \text{ or } x \leq 0$ $\leftarrow$ $f(x) \geq 0 \rightarrow x \geq 0$ $\leftarrow$ $f(x) \geq 0 \rightarrow x \geq 0$

$D_f = [0, 1] \cup [1, \infty)$ $\leftarrow$ $x \geq 1 \text{ or } x \leq 0$

$D_f = [0, 1] \cup [1, \infty)$

$g(x) = \begin{cases} 0 & x \in \mathbb{Z} \\ -1 & x \notin \mathbb{Z} \end{cases}$

$g(x) = -1$

$-1 + 1 = 0$

$g(x) = 0$

$0 + 1 = 1$

$[1] + [-1] = 0 \leftarrow x = 1$

$[1, 0] + [-1, 0] = -1 \leftarrow$

$\leftarrow$

$D = \{0, 1, 3\}$

$x \geq 1 \text{ or } x \leq 0$

$x \neq 1$

$x \in \mathbb{Z}$

$\leftarrow$

$\leftarrow$

$f(x) = \sqrt{x^2 - x}$

$h(x) = \frac{f(x)}{g(x)} = ?$

$g(x) = \{ (1, 1), (3, 9), (-1, 1), (1, 1), (3, 9) \}$

$$\omega x - x^p - k > 0 \rightarrow (x-1)(x-k) \geq 0 \rightarrow 1 \leq x \leq k \rightarrow D_f = [1, k]$$

$$x=1 \text{ (S)}, \rightarrow \sqrt{\omega-1-k} = 0 \rightarrow g(1) = \omega \rightarrow \frac{0}{\omega} = 0 \quad \text{از نقاط } g \text{ فقط } \omega, k, 1 \text{ را در نظر بگیر}$$

$$x=k \text{ (S)}, \rightarrow \sqrt{\omega-k-k} = \sqrt{k} \rightarrow g(k) = k \rightarrow \frac{\sqrt{k}}{k}$$

$$x=k \text{ (S)}, \rightarrow \sqrt{\omega-1-k-k} = 0 \rightarrow g(k) = k \rightarrow \frac{0}{k} = 0$$

$$D_f \rightarrow \{ (1, \omega), (k, \frac{\sqrt{k}}{k}), (k, 0) \}$$

$$\text{الف } y = x^{\omega} - kx^k + kx \rightarrow x^{\omega} - kx^k + kx - 1 + 1 \rightarrow y = (x-1)^{\omega} + 1$$

$$y-1 = (x-1)^{\omega} \rightarrow \sqrt[\omega]{y-1} = x-1 \rightarrow \sqrt[\omega]{y-1} + 1 = x \rightarrow R_f = \mathbb{R}$$

$$\text{ب } y = \frac{1}{x^k - kx + 1} \rightarrow$$

$$\frac{1}{x^k - kx + 1} = y \rightarrow y(x^k - kx + 1) = 1$$

$$x-1)^k = \frac{1+y}{y}$$

$$x-1 = \frac{\sqrt[1+y]{y}}{\sqrt[1+y]{y}} \rightarrow x = \sqrt[1+y]{\frac{1+y}{y}} + 1 \rightarrow 0, -1 \quad \begin{array}{c} -1 \quad 0 \\ + \quad - \quad + \end{array} \rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$$

$$\text{الف } y = x^k - kx + 1$$

$$k-1+1=0$$

$$\min \begin{array}{c} p \\ c \end{array} \rightarrow R_f = [k, +\infty)$$

$$\text{ب } y = x^k + 4x + k$$

$$-1+1+k = -1$$

$$\max \begin{array}{c} p \\ 12 \end{array} \rightarrow R_f = (-\infty, 12]$$

$$\text{ج } y = \sqrt{x^k - kx - k}$$

$$k-1-k$$

$$\min \begin{array}{c} p \\ -V \end{array} \rightarrow R_f = \sqrt{[-V, +\infty)} \rightarrow [0, +\infty)$$

$$\text{د } y = \sqrt{4x - x^k}$$

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$$\max \begin{array}{c} p \\ 9 \end{array} \quad \sqrt{(-\infty, 9]} = [0, 3]$$

$$\text{الف } y = x^{\omega} - \omega x^k + kx + 1$$

$$R_f = \mathbb{R} \quad \text{تابع متوجه ای از جواب ها است}$$

$$\text{ب } y = x^k - c_1 x^k + kx + k$$

$$R_f = \mathbb{R}$$

$$\text{ج } y = \sqrt{x^k - 4x^k + 4x + 1}$$

$$\sqrt{(-\infty, +\infty)} \rightarrow [0, +\infty)$$

$$\text{د } y = (x^{\omega} - kx^k + kx + 1)^{\frac{1}{p}}$$

$$(1-\infty, +\infty)^{\frac{1}{p}} \rightarrow [0, +\infty)$$

الف $y = \frac{n+1}{n-4} \rightarrow R - \{ \frac{9}{2} \} \rightarrow R_f = R - \{ 3 \}$ - ۱۵

ب $y = \frac{2n+1}{n+1} \rightarrow R - \{ \frac{9}{2} \} \rightarrow R_f = R - \{ 2 \}$

(۳) $f(x_n) = \left\{ \left(\frac{1}{2}, 2 \right) \left(\frac{3}{2}, -1 \right) (2, 2) \left(-\frac{1}{2}, 4 \right) \right\}$ x های f باید مقیم بر ۲ نبوند!

$f(x_n) = \left\{ (1, 2) (-1, 2) (\sqrt{3}, -1) (-\sqrt{3}, -1) (2, 2) (-2, 2) \right\}$ هرکدام از x های f را برابر ۲ قرار دهیم!

$2g'(x) + 1 = \left\{ (-2, 19) (1, 3) (3, 9) (-1, 1) \right\}$ این عمل ردی و x های و اعمال می شود:

$\frac{2f}{g} = \left\{ \left(1, \frac{2 \times 2}{-1} \right) \left(3, \frac{2 \times -1}{2} \right) \left(-1, \frac{2 \times 4}{2} \right) \right\} = \left\{ (1, -2) (3, -1) \right\}$