

۲. آفرین عالی نوشتار مضرب چسبندگی کردی در تالیفات من ممنونم

$$f(x) + f\left(\frac{1}{x}\right) = \frac{3x^2 - 12x + 10}{x}$$

$$f(x) = 3x - 4$$

$$f(-1) = 3(-1) - 4 = -7$$

$$f(-1) = 0$$

$$ax + b + \frac{a}{x} + b = \frac{3x^2 - 12x + 10}{x}$$

$$\frac{ax^2}{x} + \frac{a}{x} + bx = \frac{3x^2}{x} + \frac{-12x}{x} + \frac{10}{x}$$

$$ax^2 + a + bx = 3x^2 - 12x + 10$$

$$ax^2 = 3x^2 \Rightarrow a = 3$$

$$bx = -12x \Rightarrow b = -12$$

$$f(x) = (x-1)\sqrt{1-x}$$

$$1-x \geq 0 \rightarrow x \leq 1 \quad D_f = (-\infty, 1]$$

$$g(x) = -\sqrt{(1-x)^3} \Rightarrow -\sqrt{(1-x)^2} \sqrt{1-x} \Rightarrow 1-x \geq 0 \rightarrow x \leq 1 \rightarrow D_g = (-\infty, 1]$$

$$D_f = D_g$$

$$f(x) = x\sqrt{x} \quad x \geq 0 \Rightarrow D_f = [0, +\infty)$$

$$g(x) = \sqrt{x^3} \quad x^2 \geq 0 \Rightarrow D_g = [0, +\infty)$$

$$D_f = D_g$$

$$f(x) = g(x)$$

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

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

$$x \geq 0 \quad D_f = [0, +\infty)$$

$$f(x) = 0$$

$$x - |x| \geq 0 \Rightarrow x \geq 0 \rightarrow |x| = x \rightarrow x - |x| = 0 \Rightarrow g(x) = 0 \quad D_g = [0, +\infty)$$

$$x < 0 \rightarrow |x| < 0 \rightarrow g(x) = \sqrt{-2x}$$

$$\text{الف} \quad \left(\frac{f+g}{f-g} \right)(1) \Rightarrow \frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = 3$$

$$\text{ب} \quad \left(\frac{f+g}{f-g} \right)(2) \Rightarrow \frac{f(2)+g(2)}{f(2)-g(2)} = \frac{2+2}{2-2} = \frac{4}{0} \Rightarrow \text{تعریف نشده}$$

$$f(x) = \begin{cases} (x+1)(x+2) & : x > 1 \\ 2x+1 & : x \leq 1 \end{cases}$$

$$f(a) = f(-1) + a$$

$$(a+1) \times 2 + 1 = 2a - 1$$

$$1 + a = -1 \Rightarrow a = -2$$

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$$f(x) = \sqrt{x} + \frac{1}{\sqrt{x}} + 1$$

$$\Rightarrow r(y+z+r) = r(y+z)+r \quad f(r-\sqrt{r}) = \frac{1}{\sqrt{r-\sqrt{r}}} + \sqrt{r-\sqrt{r}} + 1$$

$$f(r-\sqrt{r}) + f(r+\sqrt{r}) = ? \quad \hookrightarrow y+z+r$$

$$y = \sqrt{r-\sqrt{r}} \quad z = \sqrt{r+\sqrt{r}}$$

$$yz = \sqrt{r-\sqrt{r}} \cdot \sqrt{r+\sqrt{r}} = 1$$

$$\Rightarrow \frac{1}{y} = z \quad / \quad \frac{1}{z} = y$$

$$\hookrightarrow y+z+r$$

نه چون يك دوايدن در صنديق خيانت اكنه

$$r(y+z)+r = 154+r$$

$$(y+z)^2 = y^2 + z^2 + 2yz \Rightarrow r + \sqrt{r} + r - \sqrt{r} + 2\sqrt{1} = 9 \Rightarrow y+z = \sqrt{9}$$

$$rf(x) - rf(-x) = Fx^2 - x$$

$$f(x) - 9f(-x) = 18x^2 - 2x$$

$$\hookrightarrow x = -x$$

$$\hookrightarrow rf(-x) - rf(x) = 18x^2 + 2x$$

$$9f(-x) - 9f(x) = 18x^2 + 2x$$

$$-2f(x) = 18x^2 + 2x$$

$$f(x) = -\frac{18x^2 + 2x}{2}$$

$$\Rightarrow -9x^2 - x$$

$$f(0) = ? \quad \frac{10}{1}$$

$$(x+r)f(x) - rf(x+r) = Fx^2 - mx + r^{m-1}$$

$$\frac{r^{m-1}}{r} = \frac{10 + 5m}{r}$$

$$x=0 \quad (r)f(0) - 0 = r^{m-1}$$

$$9m - 10 = 5m$$

$$rf(0) = r^{m-1} \Rightarrow f(0) = \frac{r^{m-1}}{r}$$

$$Fm = 18 \Rightarrow m = \frac{9}{2}$$

$$x = -r \Rightarrow (0)f(r) + 9f(0) = 14 + r^m + r^{m-1}$$

$$9f(0) = 10 + 5m$$

ج) $f(x) = x - 1$ ✓

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$f(x) = \{ (1,1), (-1,4), (0,5), (-1,2), (2,3-1) \}$

الف) $g(x) = f(x-1)$

$x-1 = -1 \rightarrow x = 0 \rightarrow f(0) = 5 \rightarrow g(-1) = 5$
 $x-1 = 0 \rightarrow x = 1 \rightarrow f(1) = 1 \rightarrow g(0) = 1$
 $x-1 = -1 \rightarrow x = 0 \rightarrow f(0) = 5 \rightarrow g(-1) = 5$
 $x-1 = 2 \rightarrow x = 3 \rightarrow f(3) = -1 \rightarrow g(2) = -1$
 $x-1 = 1 \rightarrow x = 2 \rightarrow f(2) = 2 \rightarrow g(1) = 2$

$g(x) = \{ (-1,5), (0,1), (2,-1), (1,2) \}$

ب) $h(x) = f(|x|)$

$|x| = 0 \rightarrow h(0) = f(0) = 5$
 $|x| = 1 \rightarrow h(1) = f(1) = 1$
 $|x| = 2 \rightarrow h(2) = f(2) = 2$

$h(x) = \{ (0,5), (1,1), (2,2), (-1,1), (-2,2) \}$

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