

$$2f(a) = f(a+1)(1) = f(1a+1) = 14a+14 = f(-1)+a \Rightarrow 14a+14 = 1a-f+a$$

$$14a+14 = 1a-f$$

$$14a = -14 \\ a = -1, 1$$

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$$f(x) = \frac{1}{x} \rightarrow \text{رابطه معکوس} \rightarrow x = \frac{1}{y} \rightarrow \frac{1}{x} = y + \sqrt{y}$$

$$\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 = \frac{1}{x} + x + 2 \rightarrow \frac{1}{x} + x + 2 = y \rightarrow \sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{y}$$

$$\sqrt{x} + \frac{1}{\sqrt{x}} = y$$

$$f\left(\frac{1}{y}\right) + f(y) = y \times (\sqrt{y} + \frac{1}{\sqrt{y}}) = y + \sqrt{y}$$

$$f\left(\frac{1}{y}\right) = y$$

$$f(y) = \sqrt{y}$$

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$$2f(-x) - 3f(x) = 4x^2 + x$$

$$2f(x) - 3f(x) = 4x - x$$

$$\rightarrow f(x) = -4x^2 - \frac{x}{2}$$

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$$f(0) \Rightarrow 2f(0) - 0 = 3m - 1$$

$$f(-1) \Rightarrow 0 \cdot f(-1) - 3(-1)f(0) \Rightarrow 3f(0) = 14 + 3m + 3m - 1 = 4f(0) = 14 + 6m$$

$$2f(0) = 3m - 1 \Rightarrow 4f(0) = 6m - 2$$

$$4f(0) = 14 + 6m$$

$$6m - 2 = 14 + 6m$$

$$6m = 16 \\ m = \frac{16}{6} = \frac{8}{3}$$

$$2f(0) = 3 \times \frac{8}{3} - 1$$

$$2f(0) = \frac{16}{3} - 1$$

$$f(0) = \frac{13}{6}$$

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

$$f(x) = ax + b$$

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

$$b = -9$$

$$a = 3$$

$$f(-1) = -3 - 9 = -12$$

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(I) $1-x \geq 0$ $1 \geq x$ (II) $(1-x)^2 \geq 0$ $1 \geq x$ $D_f = D_g$ $g(x) = \sqrt{(1-x)^2(1-x)} = \sqrt{(1-x)^2} \sqrt{1-x} \rightarrow 1-x \geq 0 \rightarrow x \leq 1$ $g(x) = (1-x) \sqrt{1-x} = x - 1 \sqrt{1-x}$ $g(x) = f(x) \Rightarrow$	دو تابع مساوی اند.	۶
(I) $x \geq 0$ (II) $x \geq 0$ $D_f = D_g$ $g(x) = \sqrt{x^2 \cdot x} = \sqrt{x^2} \cdot \sqrt{x} = x \sqrt{x}$ $f(x) = g(x)$	عبر دو تابع مساوی اند.	۷
(I) $x \geq 0$ (II) $x - x \geq 0$ $x \geq x$ $x \geq 0$ $x - x = x - x = 0 \rightarrow x \geq 0$ $g(x) = 0$	$D_f = D_g$ $0 \leq \sqrt{x} - [\sqrt{x}] < 1$ به نسبت صغیر همیشه منفی است. $g(x) = 0$ $f \neq g \quad f = g$ دو عبارت مساوی اند.	۸
الف) $f(1) = 2 \quad g(1) = 1$ $\frac{1+1}{1-1} = 2$ ج) $f(0) = 0 \quad g(-1) = 1$ $0 \times -1 = 0$	ب) $f(2) = 3 \quad g(2) = 3$ $f(0) = 0$ عبارت تن شده است. خرج: $3 - 3 = 0$	۹
الف) $D_f = \{-2, -1, 0, 2, 3\}$ $g = \{(-\frac{1}{2}, 2), (0, 4), (\frac{1}{2}, 5), (1, 1), (\frac{3}{2}, -1)\}$	ب) $D_f = \{0, 2, 3\}$ $h(0) = f(0) = 5$ $h(2) = h(-2) = f(2) = 1$ $h(3) = h(-3) = f(3) = -1$ $h = \{(-2, -1), (-2, 1), (0, 5), (2, 1), (3, -1)\}$	۱۰