

$$f(m) = \begin{cases} m-1 & [m] > \varepsilon \\ \varepsilon m + 3 & [m] \leq \varepsilon \end{cases} \rightarrow f(m) - m + 1 \rightarrow f(m) = \begin{cases} m-1 & a > a \\ \varepsilon m + 3 & a \leq a \end{cases} \rightarrow f(m) - m + 1 > 0$$

$$\rightarrow m-1-m+1 > 0 \rightarrow a > 0 \rightarrow [a > a] \rightarrow \varepsilon a + 3 - a + 1 > 0 \rightarrow 3m + \varepsilon > 0 \rightarrow a > -\frac{\varepsilon}{3}$$

$$\rightarrow -\frac{\varepsilon}{3} \leq a < a \rightarrow D_f = [-\frac{\varepsilon}{3}, \infty)$$

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$$y = \frac{p \varepsilon m^p + p \varepsilon m^p + 11 \varepsilon + 3}{(\varepsilon m^p + \varepsilon m + 1)^p} \rightarrow \frac{p(11 \varepsilon^p + 11 \varepsilon m^p + \varepsilon m + 1)}{((\varepsilon m + 1)^p)^p} \rightarrow \frac{p(\varepsilon m + 1)^p}{(\varepsilon m + 1)^{\varepsilon}} \rightarrow \frac{p}{\varepsilon m + 1}$$

$$\rightarrow D_f = IR - \{-\frac{1}{p}\} \text{ رقت!}$$

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$$f(m) = \begin{cases} \frac{a^p + p m^p - a - p}{a^p - 1} & a \neq \pm 1 \\ \frac{a m + p}{a + b} & a = \pm 1 \end{cases} = g(m) = a + c \rightarrow a + c = \frac{a^p + p m^p - a - p}{a^p - 1} \rightarrow a(m^p - 1) + c(a^p - 1) = a^p + p m^p - a - p$$

$$\rightarrow a^p - a + c m^p - c = a^p + p m^p - a - p \rightarrow c = p \rightarrow g(m) = a + p \rightarrow a = 1 \rightarrow y = p \rightarrow \frac{a+p}{1+b} = p \rightarrow p^2 b = a + p$$

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

$$\rightarrow \varepsilon b = p \rightarrow b = \frac{p}{\varepsilon} \rightarrow a = \frac{p}{\varepsilon} \rightarrow b+c = \frac{p}{\varepsilon} + p = \frac{p(1+\varepsilon)}{\varepsilon}$$

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$$f(m) = g(m) \rightarrow \frac{a^p - 1}{a^p + c m + b} = \frac{a+1}{a-c} \rightarrow \frac{a^p - 1}{a^p + c m + b} = \frac{(m+1)(m-1)}{(m-c)(a-1)} \rightarrow a^p + c m + b = (m-c)(m-1)$$

$$a^p + c m + b = m^2 - (c+1)m + c \rightarrow a = (a-c)^p \rightarrow a^p - (c+1)a + c = a^p - p c m + c^p$$

$$\rightarrow a + b + c = 0$$

طول نبوس
a
b
c

صفحه ۳ آفر...

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$$f(m) = (m-p)^p(m-1) \rightarrow g(m) = f(m+1) + f(1-m) \rightarrow g(m) = ((m+1)-p)^p((m+1)-1) + ((1-m)-p)^p((1-m)-1)$$

$$g(m) = (m-p)^p(m) + (-m-p)^p(-m) \rightarrow g(m) = m((m-p)^p - (m+p)^p) = m(-1)m \rightarrow g(m) = -1 m^2$$

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$f(1-m) = \begin{cases} m+1 & m \leq 0 \\ \varepsilon m & m > 0 \end{cases} \rightarrow f(-1) + f(1) = ? \rightarrow m = -1 \rightarrow 1-m = -1 \rightarrow m = 1 \rightarrow f(-1) \neq f(1)$ $m = 1 \rightarrow 1-m = 0 \rightarrow m = -1 \rightarrow f(1) \neq f(-1) \rightarrow f(1) + f(-1) = 1 + \varepsilon \rightarrow f(1) + f(-1) \neq 0$	2 6
$f(m+1) = m^2 + 3m \rightarrow f(4) = ? \rightarrow m+1 = 4 \rightarrow m+1-4 = 0 \rightarrow (m+1)(m-2) = 0$ $m = -1 \text{ or } m = 2 \rightarrow m = 2 \rightarrow f(4) = (2)^2 + 3(2) = 4 + 6 = 10 \rightarrow f(4) = 10$	2 7
$f(m) = m^2 + m \rightarrow f(m-1) + f(1-m) \rightarrow f(m-1) = (m-1)^2 + (m-1) \rightarrow f(m-1) = (m-1)(m-1+1)$ $f(1-m) = (1-m)^2 + (1-m) \rightarrow f(1-m) = (1-m)((1-m)+1) \rightarrow f(1-m) = -(m-1)((m-1)+1)$ $f(m-1) + f(1-m) = (m-1)((m-1)+1) + (-(m-1)((m-1)+1)) \rightarrow f(m-1) + f(1-m) = 0$	2 8
$f(m) = \sqrt{\varepsilon m - 3\varepsilon} + k - 1 \quad g(m) = \sqrt{b - \varepsilon m} + 3k \rightarrow f \circ g = \{(1, k)\} \rightarrow D_f \cap D_g = \{1\}$ $D_f = [\frac{3\varepsilon}{\varepsilon}, +\infty), D_g = (-\infty, \frac{b}{\varepsilon}] \rightarrow f(1) = \sqrt{\varepsilon - 3\varepsilon} + k - 1 \rightarrow g(1) = \sqrt{b - \varepsilon} + 3k$ $\rightarrow D_{f \circ g} = \{1\} \rightarrow \frac{3\varepsilon}{\varepsilon} = \frac{b}{\varepsilon} = 1 \rightarrow a = \frac{\varepsilon}{\varepsilon} \rightarrow b = \varepsilon \rightarrow f(1) + g(1) = k \rightarrow k - 1 + 3k = k$ $3k = 1 \rightarrow k = \frac{1}{3} \rightarrow \varepsilon - \frac{b}{\varepsilon} - k = \varepsilon - 1 + 1 = 0$	2 9
$f(m) = \sqrt{m - a} + n \rightarrow g(m) = \sqrt{m + 1} \rightarrow D_{f \circ g} = [-1, \infty) \rightarrow D_f = (-\infty, m]$ $D_g = [-1, +\infty) \rightarrow D_{f \circ g} = [-1, m] \rightarrow m = 1 \rightarrow f \circ g(1) = \sqrt{1 - a} + n = \sqrt{1 - a} + n = \sqrt{1 - a} + n$ $f \circ g(1) = 1 + n - \sqrt{1 - a} = \sqrt{1 - a} \rightarrow n = \sqrt{1 - a} - 1 \rightarrow n + m = 1 + \sqrt{1 - a} - 1 \rightarrow n + m = \sqrt{1 - a}$	2 10

$$D_f = \mathbb{R} - \{c\}$$

۴- چون دو تابع با هم برابرند دامنه‌های برابر داشتند :

یعنی $g(x)$ در خارج ریشه مضاعف داشته :

$$x^2 + ax + b = (x - c)^2 = x^2 - 2cx + c^2 \rightarrow \begin{cases} a = -2c \\ b = c^2 \end{cases}$$

$$g(x) = f(x) \rightarrow$$

همچنین ضابطه‌ها ~~یکسان~~ دارند :

$$\frac{x^2 - 1}{x^2 + ax + b} = \frac{x + 1}{x - c} \rightarrow \frac{(x - 1)(\cancel{x + 1})}{(x - c)^2} = \frac{\cancel{x + 1}}{\cancel{x - c}} \rightarrow \begin{cases} c = 1 \\ a = -2 \\ b = 1 \end{cases} \text{ جواب: } \boxed{5}$$