

نام و نام خانوادگی آدرس کلاس پاسخنامه تشریحی تکلیف شماره B

$$2y = 3x - 1 \Rightarrow \frac{2y+1}{2} = x \Rightarrow y = \frac{3x+1}{2}$$

$$\frac{3x+1}{2} = 0 \Rightarrow x = -\frac{1}{3}$$

$$\left(-\frac{1}{3}, \frac{1}{2}\right)$$

$$\frac{1}{3} \times \frac{1}{3} \times \frac{1}{2} = \frac{1}{18} \checkmark$$

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الف

$$(x^2 - 2x + 1) + 2 = (x-1)^2 + 2$$

$$x^2 - 2x + 3 \rightarrow \sqrt{x-2+1} = \sqrt{x-1}$$

$$D_{f^{-1}} = R_f = [2, +\infty)$$

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$$2x - \sqrt{14 + 4x^2 - 14x} : 2x - \sqrt{(x-2)^2} = 2x - |x-2|$$

$$2x - 2x + 4 = 4$$

$$3 - x - 2x + 4 = 4 \Rightarrow 3 - 3x = 0 \Rightarrow x = 1$$

$$y = \frac{x+4}{x-2}$$

$$D_{f^{-1}} = R_f = (-\infty, 2]$$

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اگر بخواهیم تابع را رسم کنیم $\pm \sqrt{}$ مجانب های قائم آن $x=0$ و $y=1$ است. مجانب های افقی آن $y=1$ است.

$$x = \sqrt{x^2 - 5} \Rightarrow x^2 = x^2 - 5 \Rightarrow 0 = -5$$

$$\frac{x}{x-5} = y \Rightarrow \frac{x^2}{x^2-5} = y^2 \Rightarrow \frac{y^2}{y^2-1} = \frac{x^2}{x^2-5}$$

$$x = \sqrt{\frac{5y^2}{y^2-1}}$$

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در این سوال هم می‌تونه باشه

$$g(x) = \begin{cases} x^2 - 4x + k & x \geq 2 \\ -x^2 + 4x + 12 & x < 2 \end{cases}$$

$$g(2) = 4 - 8 + k = k - 4$$

$$g(2) = -4 + 8 + 12 = 16$$

$$k - 4 = 16 \Rightarrow k = 20$$

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$$\begin{cases} \varepsilon x; x \geq 0 \\ \nu x; x < 0 \end{cases}$$

$$f^{-1} \begin{cases} \frac{x}{\varepsilon}; x \leq 0 \\ \frac{x}{\nu}; x > 0 \end{cases}$$

$$\Rightarrow f^{-1} = \frac{\nu}{\lambda} x - \frac{1}{\lambda}$$

$$a = \frac{\nu}{\lambda} \quad b = -\frac{1}{\lambda}$$

$$ab = -\frac{\nu}{\varepsilon \lambda} \checkmark$$

(2)

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$$\frac{\nu x + \varepsilon}{x + \nu} \stackrel{x=\nu}{=} \frac{1}{\nu + \nu} = \frac{1}{2\nu} \Rightarrow m = -\nu \rightarrow f(x) = \frac{\nu(x + \varepsilon)}{x - \nu} = y \Rightarrow \frac{\nu y - \varepsilon}{y - \nu} = \frac{\nu y - \varepsilon}{y - \nu} = x$$

$$\stackrel{f^{-1}}{\Rightarrow} y = \frac{\nu x + \varepsilon}{x - \nu} \rightarrow \stackrel{f^{-1}}{+} x = \frac{\nu x + \varepsilon}{x - \nu} + x = x \Rightarrow \frac{\nu x + \varepsilon}{x - \nu} = 0 \Rightarrow x = \frac{\varepsilon}{\nu} \checkmark$$

(2)

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$$D_{f^{-1}} = R_f \circ (R - \frac{a}{\varepsilon}) = R - \{ \nu \}$$

$$f(\nu - \nu x) = \nu g(\frac{x}{\nu}) = t \Rightarrow f^{-1}(t) = \nu - \nu x \quad \nu g(\frac{x}{\nu}) = t \Rightarrow \nu - t = g(\frac{x}{\nu})$$

$$\Rightarrow g^{-1}(\nu - t) = \frac{x}{\nu} \Rightarrow \varepsilon g^{-1}(\nu - t) = x \Rightarrow f^{-1}(t) = \nu - \varepsilon g^{-1}(\nu - t)$$

$$f^{-1}(t) + \varepsilon g^{-1}(\nu - t) = \nu \xrightarrow{t = -\nu} f^{-1}(-\nu) + \varepsilon g^{-1}(\varepsilon) = \nu \checkmark$$

(2)

1

$$-y = \frac{-2x - 1\nu}{x + 1} \Rightarrow y = \frac{2x + 1\nu}{x + 1} \xrightarrow{\nu} \frac{2(x - \nu) + 1\nu}{x - 1} - \nu = \frac{2x + 1\nu - 2\nu x + \nu}{x - 1}$$

$$\frac{\nu x + 4}{x - 1} = y \rightarrow -\frac{-y - 4}{y - \nu} = \frac{y + 4}{y - \nu} \xrightarrow{f^{-1}} g \circ \frac{x + 4}{x - \nu} \rightarrow \frac{x + 4}{x - \nu} = \frac{\nu x + 4}{x - 1}$$

$$x^2 + 4x + 4 = \nu x^2 - \varepsilon 2x + 4x - 1\nu = x^2 - \nu x - 4 \xrightarrow{\text{coefficient}} \frac{\nu}{1} x \checkmark$$

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$$x + \varepsilon[x] = y \rightarrow [x + \varepsilon[x]] = [y] \Rightarrow \omega[x] = [y] \xrightarrow{f^{-1}} \omega[y] = [x] \Rightarrow [y] = \frac{x}{\nu}$$

$$[x + \varepsilon[x]] = y \Rightarrow y + \varepsilon[y] = x \Rightarrow y = \frac{x}{\nu} \quad \varepsilon[y] = \frac{\varepsilon}{\nu} [x] = g(x)$$

$$(f - g) = x + \varepsilon[x] - \frac{\varepsilon}{\nu} [x] = x + \frac{\nu}{\nu} [x]$$

دقت!

(1, 1, 5)

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