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د

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Date

No

$$f(x) = \left(\frac{1}{x}\right)^{x-1} - 1$$

$$x^0 = 0$$

$$x_1 = 0$$

(۲) -۱

$$\left(\frac{1}{x}\right)^{x-1} = 1$$

$$\left(\frac{1}{x}\right)^{x-1} = 1$$

$$x = 1$$

$$- \frac{0}{0} + \frac{1}{0} =$$

$$D_f = [0, 1] \checkmark$$

$$-x + |x-x| \geq 0$$

$$|x-x| \geq x$$

$$x - x \geq x$$

$$x - x \geq x$$

$$x \geq x$$

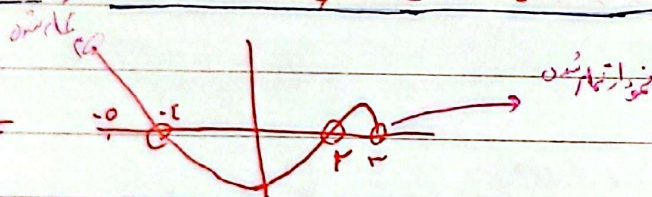
$$-x \geq x$$

$$1 \geq x$$

$$D_f = (-\infty, 1] \checkmark$$

(۲) -۲

$$f(x) =$$



$$x_1 = -1$$

$$x_2 = 2$$

$$x_3 = 2 \quad x_4 = 1$$

$$x = 1$$

$$-1 \quad -\frac{1}{2} \quad \frac{1}{2} \quad 1 \quad 2 \quad 3$$

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$$D_f = (-1, 1] \cup (2, 3) \checkmark$$

$$9x^2 - 4x^2 - (x-2) = (x^2 - x - 2)(x^2 + x + 1)$$

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$$\Delta = 1 - 4(-2) = 9 \Rightarrow \text{ریشه ها}$$

$$0 = x^2 - x - 2 = x^2 + ax + b \Rightarrow$$

$$a =$$

$$a = -1 \checkmark, b = -2 \checkmark \quad \sqrt{(-1)^2 - 4(-2)} = 3 \checkmark$$

dotnote

$$x^r + x - \frac{4\varepsilon}{x^r} - \frac{\varepsilon}{x} \geq 0$$

$$r_0 - r_0 = 0$$

(P) - a

$$\frac{x^r + x^2 - 2x^r - 4\varepsilon}{x^r} \geq 0$$

$$x^r(x^r + x^2 - \varepsilon) - 4\varepsilon$$

$$(x^r - 1)(x^2 + \omega x^r + 1)$$

$$x_1 = 0 \quad x_2 = r \quad x_3 = -r$$

$$D_f = [-r, 0) \cup [r, +\infty) \checkmark$$

(P) - 9

$$f(r-1) = r-1 = v$$

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

$$\hookrightarrow f(1) = v$$

$$f(r) = 1$$

$$f(r) + f(1) = v + 1 = 1 \checkmark$$

(P) - v

$$f(x) = x^r - 4x^r + 1x + 1 - 1 = (x-r)^r + 1$$

$$g(x) = (x+r)^r - rv$$

$$g(\sqrt{v-r}) = v - rv = -r_0$$

$$f(\sqrt{r+r}) = r+1 = 10$$

$$\boxed{\frac{-r_0}{10} = -r} \checkmark$$



$$g(x) = 2$$

$$f(x) = 2$$

$$2 + 2 = a + b\sqrt{x+c}$$

$$4 = a + b\sqrt{x+c}$$

$$(2) - \Delta$$

$$g(x) = 0$$

$$f(x) = x$$

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

$$f(x) + g(x) = \sqrt{x-2} + 2 - \sqrt{x-2} + 2 = 4 \rightarrow \text{عدد ثابت}$$

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

$$\Rightarrow a=0 \quad b=2 \quad c=-2 \quad \frac{a+b}{c} = \frac{2}{-2} = -1$$

$$\frac{g}{f} = \left\{ \left(2, \frac{1}{2} \right), \left(1, \frac{0}{1} \right), \left(2, \frac{0}{2} \right), \left(0, \frac{x}{2} \right) \right\}$$

$$(x-2)(x-1) \quad (2)$$

$$\frac{g}{f} = \left\{ \left(2, -\frac{1}{2} \right), \left(0, 2 \right) \right\}$$

$$\left\{ \left(2, \frac{1}{2} \right), \left(0, 2 \right) \right\} \checkmark$$

$$الف) f(x) = \left\{ \left(\frac{1}{2}, 2 \right), \left(\frac{2}{3}, -1 \right), \left(2, 2 \right), \left(-1, 2 \right) \right\} \checkmark \quad (2)$$

$$ب) f(x) = \left\{ \left(1, 2 \right), \left(-1, 2 \right), \left(\sqrt{3}, -1 \right), \left(-\sqrt{3}, -1 \right), \left(2, 2 \right), \left(-2, 2 \right) \right\} \checkmark$$

$$ج) xg'(x)+1 = \left\{ \left(-2, 19 \right), \left(1, 3 \right), \left(3, 9 \right), \left(-1, 1 \right) \right\} \checkmark$$

$$د) \frac{x^2}{g} = \left\{ \left(-1, \frac{1}{2} \right), \left(2, -\frac{2}{2} \right), \left(1, \frac{x}{2} \right) \right\}$$

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