

نام و نام خانوادگی: زهرا احمدی پاسخنامه تشریحی تکلیف شماره ... کلاس ... پایه دهم ... جزیره ...

$$a^3 - 4 \geq 12a - 20 \rightarrow a^3 - 12a + 16 \geq 0 \rightarrow a^3 - 12a - 4a + 4a + 16 \geq 0$$

$$(a+4)(a-2)^2 \geq 0 \quad \leftarrow a(a+4)(a-4) + 4(a+4) \geq 0 \quad \leftarrow$$

$$\rightarrow \boxed{a \geq -4}$$

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$$f^{-1}(2) = 4 \rightarrow f(4) = 2 \rightarrow 12 + k = 2 \rightarrow \boxed{k = -10}$$

$$\text{الف } f(v) = \boxed{11}$$

$$\text{ب } f(f(x)) = 2(3x - 10) - 10 = \boxed{6x - 40}$$

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$$A(2a, a) \xrightarrow[\text{صدق می کند.}]{f(x)} A'(a, 2a) \xrightarrow[\text{صدق می کند.}]{f(x)} \frac{a^2}{a-1} = \frac{2a}{1}$$

$$a^2 = 2a^2 - 2a \rightarrow a^2 - 2a = 0 \rightarrow a \rightarrow \begin{matrix} \nearrow 0 \\ \searrow 2 \end{matrix} \begin{matrix} \text{قق} \\ \text{قق} \end{matrix}$$

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$$\text{الف } \{(5, 5), (7, 7), (2, 2), (9, 9)\}$$

$$\text{ب } \{(3, 3), (4, 4), (7, 7), (9, 9)\}$$

$$\text{ج } \{(2, 5), (5, 4)\}$$

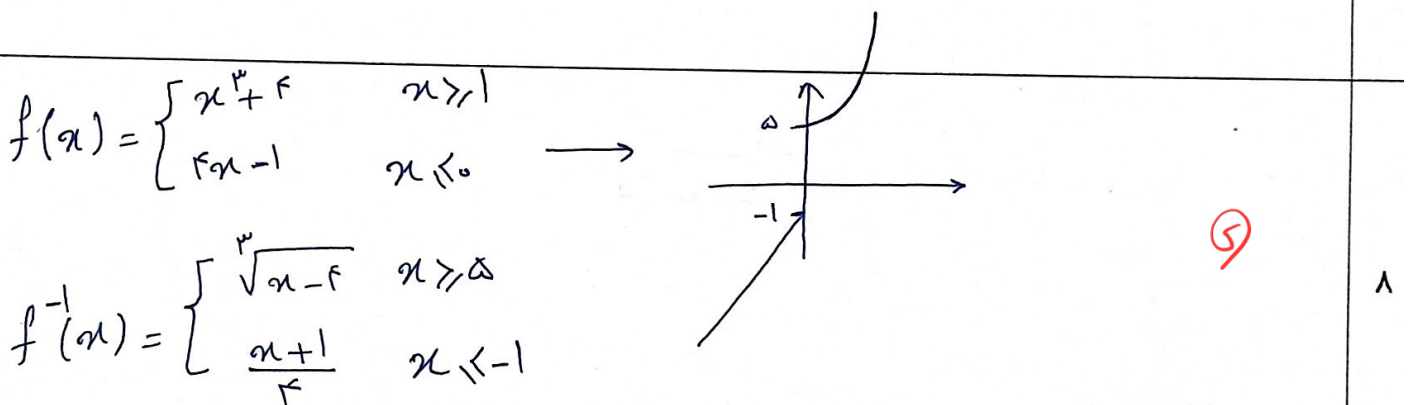
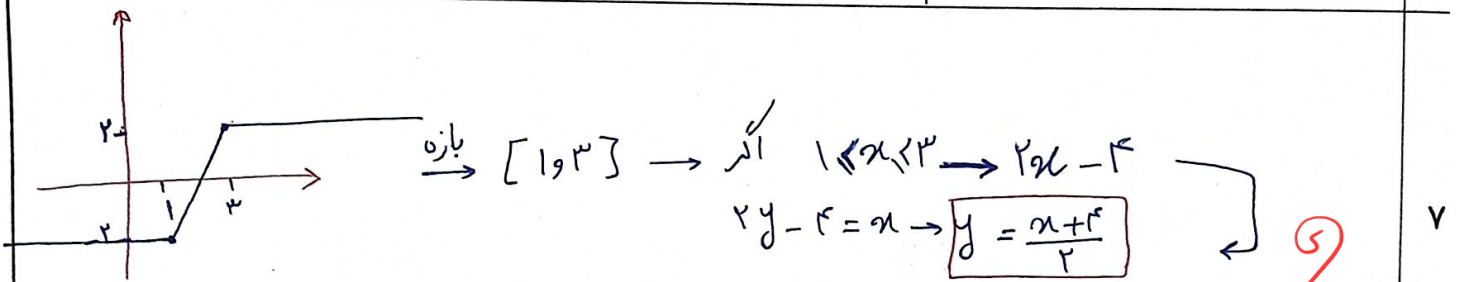
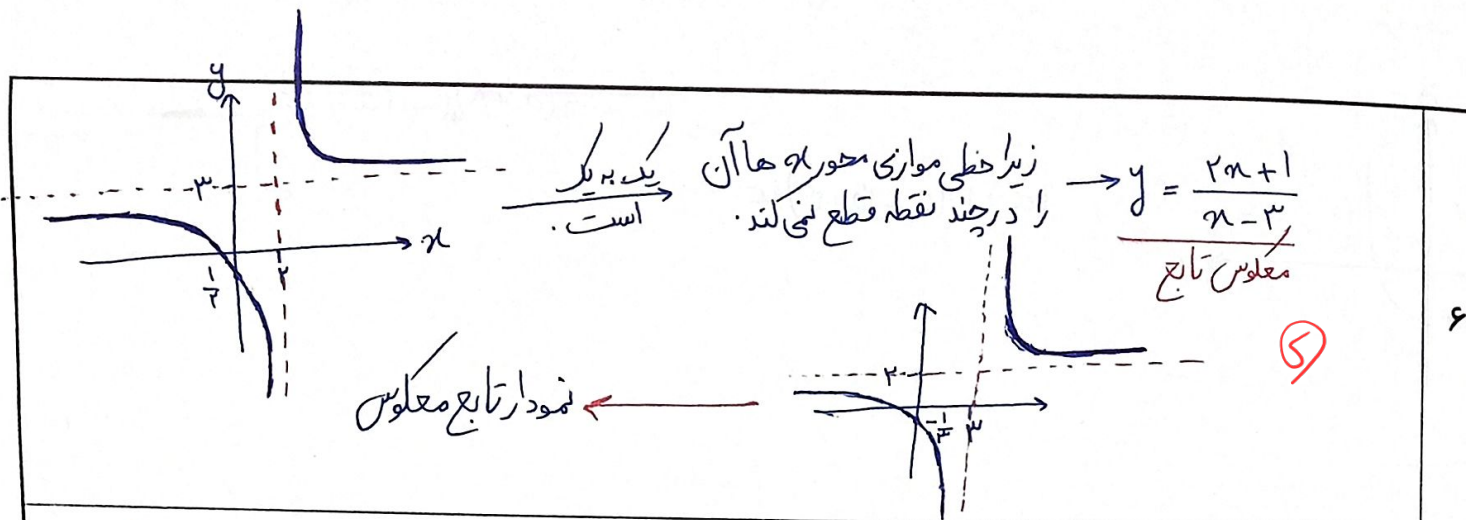
$$\text{د } \{(3, 9), (7, 3), (9, 8)\}$$

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$$g^{-1}(x) = \{(1, 2), (3, 4), (5, 6)\} \quad f \circ g^{-1} = \{(1, 4), (3, 8), (5, 0)\}$$

$$\frac{h}{f \circ g^{-1}} = \{(1, \frac{1}{4}), (3, \frac{1}{8})\}$$

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$f(x) = \frac{x^3 + 3x^2 - 2x - 1 - 3x - 3x^2}{x+3} = \frac{-3x-1}{x+3} \rightarrow f^{-1}(x) = \frac{-3x-1}{x+3} = \frac{ax+b}{cx+d}$

$f^{-1}(-1) = 1$

$\begin{cases} a=-4 \\ b=4 \\ d=9 \end{cases}$

$f^{-1}(b) = \frac{1}{r} = 5$

$x = \frac{y}{y^2+1} \rightarrow xy^2 + x = y \rightarrow y^2x - y + x = 0 \rightarrow y = \frac{1 \pm \sqrt{1-4x^2}}{2x}$