

۱۱) بررسی و تصمیم آزمون A

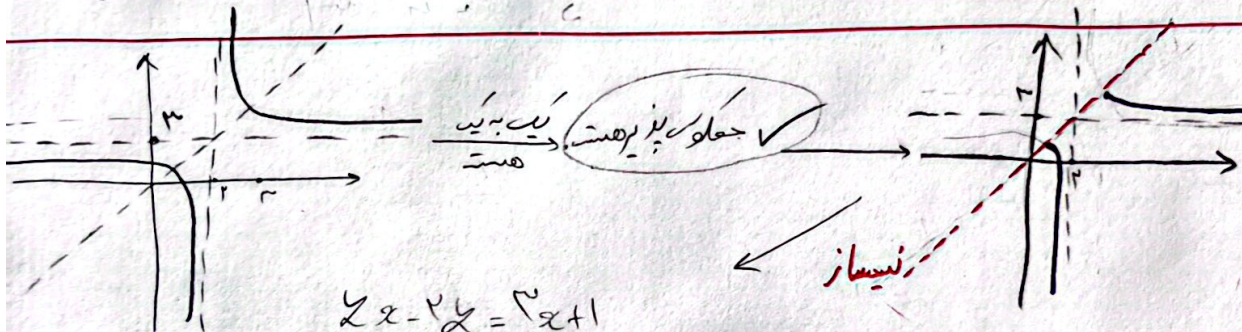
-۱
 $a^2 - 12a + 14 = 0 \rightarrow a = 2$ (عبارت فرضی شود)
 $a^2 - 12a + 14 = 0 \rightarrow a + 2 = 0 \rightarrow (a-2)^2(a+2) = 0$ (پس)
 $a = -2$ (پس)

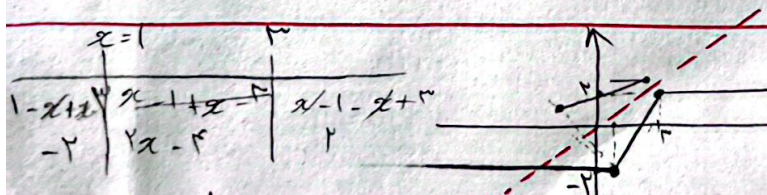
-۲
 $f(2) = 2 \rightarrow f(2) \rightarrow 3x + k = 2 \rightarrow 3x - 10 \rightarrow f(2) \Rightarrow 3x - 10 = 11$
 ب) $3(3x - 10) - 10 \rightarrow 9x - 30 - 10 \rightarrow 9x - 40$

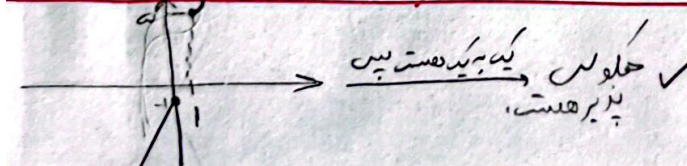
-۳
 $f^{-1}(x) \rightarrow x = \frac{ax}{x-1} \rightarrow 2x - x = ax \rightarrow x - ax = x \rightarrow x = \frac{x}{x-a} \rightarrow x = \frac{x}{x-a}$
 $a = \frac{2x}{x-a} \rightarrow a = 2$

-۴
 الف) $\{(2, 4)\}$ ب) $\{(2, 3), (4, 4), (9, 9)\}$ ج) $\{(2, 2), (4, 4)\}$ د) $\{(2, 4), (4, 9), (9, 16)\}$

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 $\frac{h}{f \circ g} \rightarrow \frac{(1, 2), (3, 2), (2, 1), (0, 1)}{(1, 4), (4, 8), (0, 0)} \rightarrow \{(1, \frac{1}{2}), (3, \frac{1}{2})\}$

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

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 $[a=1, b=3] \rightarrow 1 \leq x \leq 3 \rightarrow 2x - 2 = x$
 $x = \frac{2x+3}{2} \rightarrow 2x - 2 = 2x$

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 $\begin{cases} \sqrt{x-2} & ; x \geq 2 \\ \frac{x+1}{2} & ; x \leq -1 \end{cases}$

-۹
 $f(x) = x^2 + 2x^2 - x - 1 - 2x - 3x \rightarrow \frac{-1-3x}{2x+3} \rightarrow d=3, b=-1$
 $2x + dx = ax + b \rightarrow 2x - ax = -dx + b \rightarrow x = \frac{-dx+b}{2x-a} \rightarrow x = \frac{-dx+b}{2x-a}$

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

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