

15, 15

11 A بر روی صفحه

1, 15

1- $a^2 - 12a + 14 = 0 \rightarrow a = 2$ $\rightarrow$ عبارت فرضی شود
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2- $f(2) = 2 \rightarrow f(2) \rightarrow 3x + k = 2 \rightarrow 3x - 10 \rightarrow f(2) \rightarrow 3x - 10 = 11$
 ب) $3(3x - 10) - 10 \rightarrow 9x - 30 - 10 \rightarrow 9x - 40$

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

4- $\{ (2, 4) \}$ ب) $\{ (2, 3), (4, 4), (9, 9) \}$ ج) $\{ (2, 2), (4, 4) \}$ د) $\{ (2, 2), (4, 4), (9, 9) \}$
 الف) $\{ (5, 5), (7, 7), (9, 9) \}$ ب) $\{ (2, 2), (4, 4) \}$ ج) $\{ (2, 2), (4, 4) \}$ د) $\{ (2, 2), (4, 4), (9, 9) \}$

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

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

7- $x = 1$ $\rightarrow$ $1 - x + 2x = x - 1 + x - 2 \rightarrow x - 1 - x + 2 = 2$
 $1 - x + 2x = x - 1 + x - 2 \rightarrow x - 1 - x + 2 = 2$

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

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

$f^{-1}(a) = \frac{-9a - 2}{2a + 4} = \frac{ax + b}{bx + d} \rightarrow \begin{cases} a = -9 \\ b = -2 \\ d = 4 \end{cases}$ $f^{-1}(b) = f^{-1}(-2) = \frac{1}{2} = 5$

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

-10
0

$$y = \frac{x}{x^2+1} \xrightarrow[\text{عوض می کنیم}]{1, y, 2 \text{ می ده}} x = \frac{y}{y^2+1} \rightarrow xy^2 + x = y$$

$$xy^2 - y + x = 0$$

$$y = \frac{1 \pm \sqrt{1 - 4x^2}}{2x}$$

چون x و y هم علامتند پس فقط $\oplus$ قابل قبول است.

$$f^{-1}(x) = \frac{1 + \sqrt{1 - 4x^2}}{2x}, \quad |x| \leq \frac{1}{2}$$