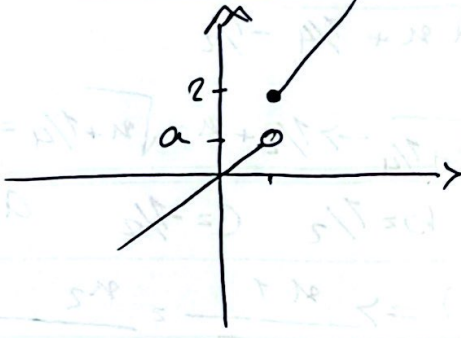
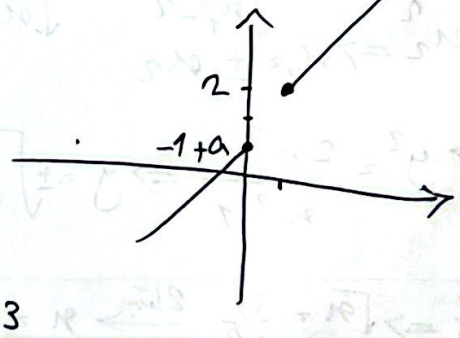
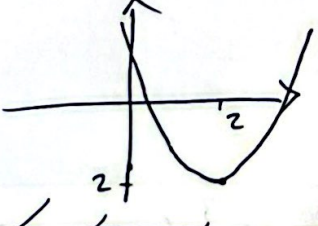


الف) $(m, 2) = (3, 2)$ $\boxed{m=3 \text{ و } n=2}$ $n^2 - n = 2 \Rightarrow n^2 - n - 2 = 0 \Rightarrow (n-2)(n+1) = 0$ ب) $(m, 3) = (2, 3) \Rightarrow m=2$ $(-1, 1) \text{ و } (a, 1) \Rightarrow a = -1 \text{ و } n=2$	1
$3x - 1 \quad x \geq 1$ $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 5 & 8 \end{vmatrix}$ $x+a \quad x < 1 \Rightarrow y = 1+a$ $1+a \leq 2 \Rightarrow a \leq 1$ 	2
$3x - 1 \quad x \geq 1$ $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 5 & 8 \end{vmatrix}$ $x+a-1 \quad x \leq 0$ $x=0 \Rightarrow a-1 \leq 2 \Rightarrow a \leq 3$ 	3
الف) $x_1 = x_2 \quad f^{-1}(x) \Rightarrow x = y^3 + 2 \Rightarrow y = \sqrt[3]{x-2}$ ب) $x = \frac{-b}{2a} = 2$ $y = -2$ 	4
الف) تابع گویا است پس یک تابع یک به یک نیست که $f^{-1}(x) \Rightarrow y = \frac{2x+1}{x-3}$ ب) تابع، تابع با برعکس یک به یک نیست زیرا به ازای هر x یک y ثابت می‌دهد $y = \frac{2(x+2)}{(x+2)} = 2$	5

ا) $f^{-1}(x) \Rightarrow x = \sqrt{y-3} \Rightarrow x^3 = y-3 \Rightarrow y = x^3 + 3$

ب)  $x = (y-2)^2 \Rightarrow y = \sqrt{x+1} + 2 = f^{-1}(x)$
 $D = [-1, +\infty)$ $R = [2, +\infty)$

$f^{-1}(x) \Rightarrow y + \sqrt{y} = x \Rightarrow y + \sqrt{y} + 1/4 = x + 1/4 \Rightarrow x + 1/4 = (\sqrt{y} + 1/2)^2$
 $\Rightarrow \sqrt{y} = \sqrt{x + 1/4} - 1/2$
 منفرقا بل قبل
 $y = 1/2 + x - \sqrt{x + 1/4} \rightarrow 1/2 + x - \sqrt{x + 1/4} = ax + b - \sqrt{x - c}$
 $\Rightarrow a = 1 \quad b = 1/2 \quad c = -1/2 \quad a + 2b + 4c = 1$

$f(x_1) = f(x_2) \Rightarrow \frac{x_1}{\sqrt{x_1^2 - 2}} = \frac{x_2}{\sqrt{x_2^2 - 2}} \Rightarrow x_1^2 x_2^2 - 2x_1^2 = x_1^2 x_2^2 - 2x_2^2$
 $\Rightarrow x_1^2 = x_2^2 \Rightarrow x_1 = \pm x_2$
 $f^{-1}(x) \Rightarrow y^2 = \frac{2x^2}{x^2 - 1} \Rightarrow y = \pm \sqrt{\frac{2x^2}{x^2 - 1}} \Rightarrow y = \frac{\sqrt{2x}}{\sqrt{x^2 - 1}}$

$\sqrt{x-1} = -2/5 \Rightarrow \sqrt{x} = 3/5 \xrightarrow{2\sqrt{x}} x = 9/25$
 $\frac{x}{|x|+1} = -2/5 \Rightarrow 2 + 2|x| = 5x \xrightarrow{x < 0} -5x = 2 - 2x \rightarrow x = -2/3$
 $9/25 - 2/3 = -33/75$

$f^{-1}(x) \Rightarrow y^3 = x - 1 \Rightarrow x = y^3 + 1 \rightarrow f(x) = x^3 + 1$
 $g(x) = x^3 + 1 + \sqrt{x^3 + 1} \rightarrow y = x^3 + 1 + \sqrt{x^3 + 1} \Rightarrow x^3 + 1 + \sqrt{x^3 + 1} = 12$
 $x^3 + \sqrt{x^3 + 1} = 11 \Rightarrow x^3 = 2 \Rightarrow g^{-1}(12) = 2$