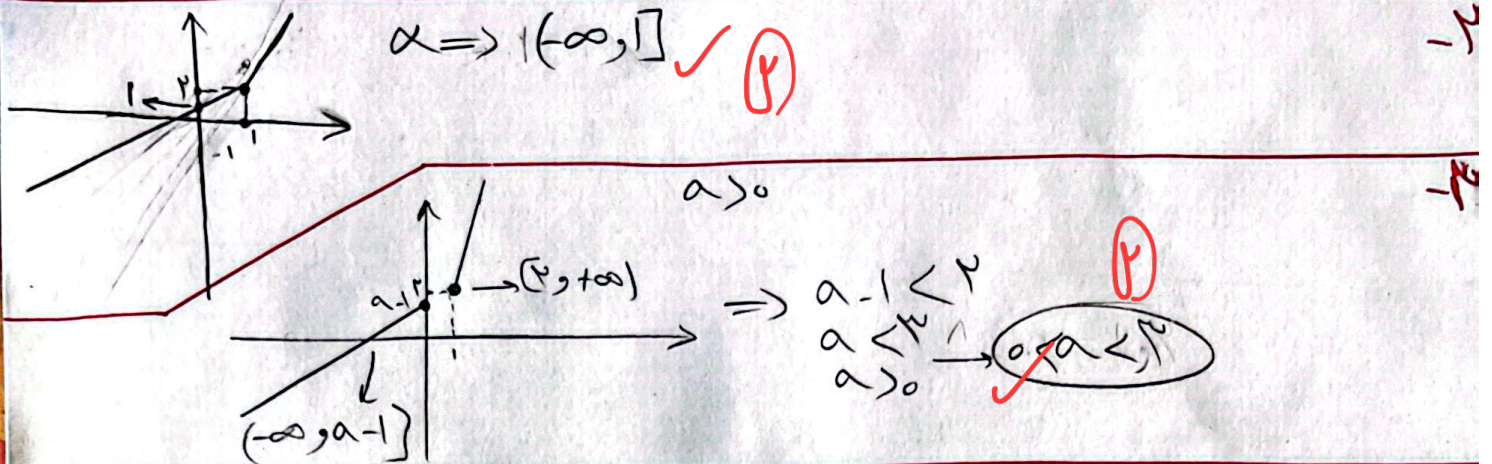


الف) $m=2$
 $n^2 - n - 2 = 0 \rightarrow (n-2)(n+1) \rightarrow n=2$ ✓
 ب) $m=2$
 $n-1 \rightarrow 1 \quad a \rightarrow -1 \quad a+2 \rightarrow 1 \quad n=2$ ✓
 (ایرانی وحید) (گروه A) ۱۳۲۵ -۱



الف) $y_1 = x_1 \rightarrow x_1 = x_2 \rightarrow x_1^2 + 2 = x_2^2 + 2 \rightarrow x_1 = x_2$
 $x = x - 2 \rightarrow x = \sqrt{x-2} \rightarrow x = \sqrt{x-2} \rightarrow f^{-1}(x) = \sqrt{x-2}$
 ب) تابع متعلق به این است و...
 چگونه پذیر نیست و یک به یک ندارد. ✓
 (۲)

الف) تابع معکوس این است پس...
 $x^2 - 2x = 2x + 1 \rightarrow x^2 - 4x = 1 \rightarrow x = \frac{4 \pm \sqrt{16+4}}{2} = \frac{4 \pm \sqrt{20}}{2} = 2 \pm \sqrt{5}$ ✓
 ب) $\frac{2(x+2)}{x+2} \rightarrow$ چگونه پذیر نیست و یک به یک نیست. ✓
 (۲)

الف) $y = \sqrt{x-3} \rightarrow x = y^2 + 3 \rightarrow x^2 = y^2 + 3 \rightarrow x^2 = y^2 + 3$ ✓
 ب) $x^2 - 2x + 3 + 1 = 1 \rightarrow x^2 - 2x + 3 = 0 \rightarrow x = \frac{2 \pm \sqrt{4-12}}{2} = 1 \pm \sqrt{-2}$ ✓
 (۲)

$a=1 \quad b=\frac{1}{p} \quad c=-\frac{1}{e} \quad a+2b+fc=1$ ✓
 (۵)

الف) $f(x_1) = f(x_2) \rightarrow \frac{x_1}{\sqrt{x_1^2-2}} = \frac{x_2}{\sqrt{x_2^2-2}}$
 $\frac{x_1^2}{x_1^2-2} = \frac{x_2^2}{x_2^2-2} \rightarrow x_1^2 x_2^2 - 2x_1^2 = x_1^2 x_2^2 - 2x_2^2 \rightarrow x_1^2 = x_2^2 \rightarrow x_1 = \pm x_2$ ✓
 ب) $x = \frac{x}{\sqrt{x^2-2}} \rightarrow x = \frac{x}{\sqrt{x^2-2}} \rightarrow x^2 = \frac{x^2}{x^2-2} \rightarrow x^2(x^2-2) = x^2 \rightarrow x^4 - 2x^2 = x^2 \rightarrow x^4 - 3x^2 = 0 \rightarrow x^2(x^2-3) = 0 \rightarrow x = 0 \text{ or } x = \pm\sqrt{3}$ ✓
 (۱)

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

✓ (1,0)

$$\frac{x}{1+x} = -\frac{1}{2} \rightarrow -1 - 2|x| = 0 \rightarrow x = -\frac{1}{2}$$

-9

(-1,0)

$$g^{-1}\left(-\frac{1}{2}\right) = b \rightarrow g(b) = -\frac{1}{2}$$

$$b = \frac{4}{10} \rightarrow -\frac{1}{2} + \frac{4}{10} = -\frac{1}{5}$$

$$(-1-2|x|)^2 \rightarrow 10x^2 + 4 + 4x = 5x^2$$

$$5x^2 + 4x + 4 = 0 \rightarrow (x+1)(x+4) \rightarrow x = -1, -4$$

$$g^{-1}(12) = a \rightarrow g(a) = 12 \quad \frac{g(x) = f(x) + \sqrt{f(x)}}{\rightarrow f(a) + \sqrt{f(a)} = 12}$$

-10

(0,)

$$f(a) + \sqrt{f(a)} - 12 = 0 \quad \sqrt{f(a)} = t \rightarrow t^2 + t - 12 = 0$$

$$(t+4)(t-3) = 0 \rightarrow \begin{cases} \sqrt{f(a)} = 3 \rightarrow f(a) = 9 \\ \sqrt{f(a)} = -4 \times \end{cases} \quad f^{-1}(9) = a$$

$$g^{-1}(12) = 2$$