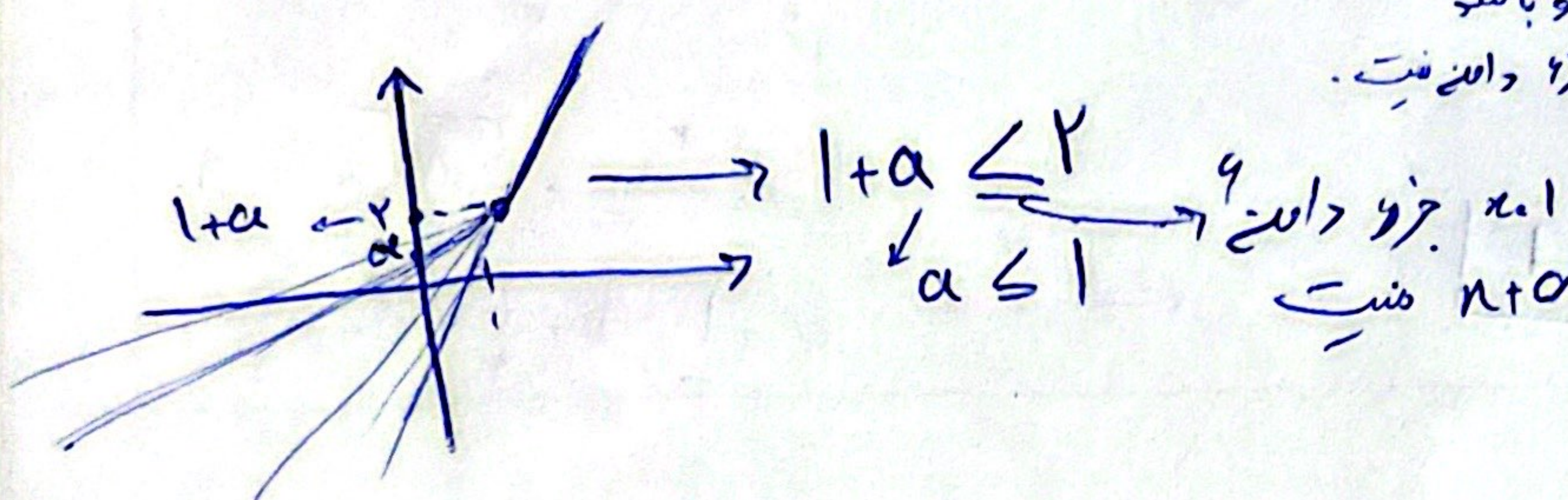


१

1

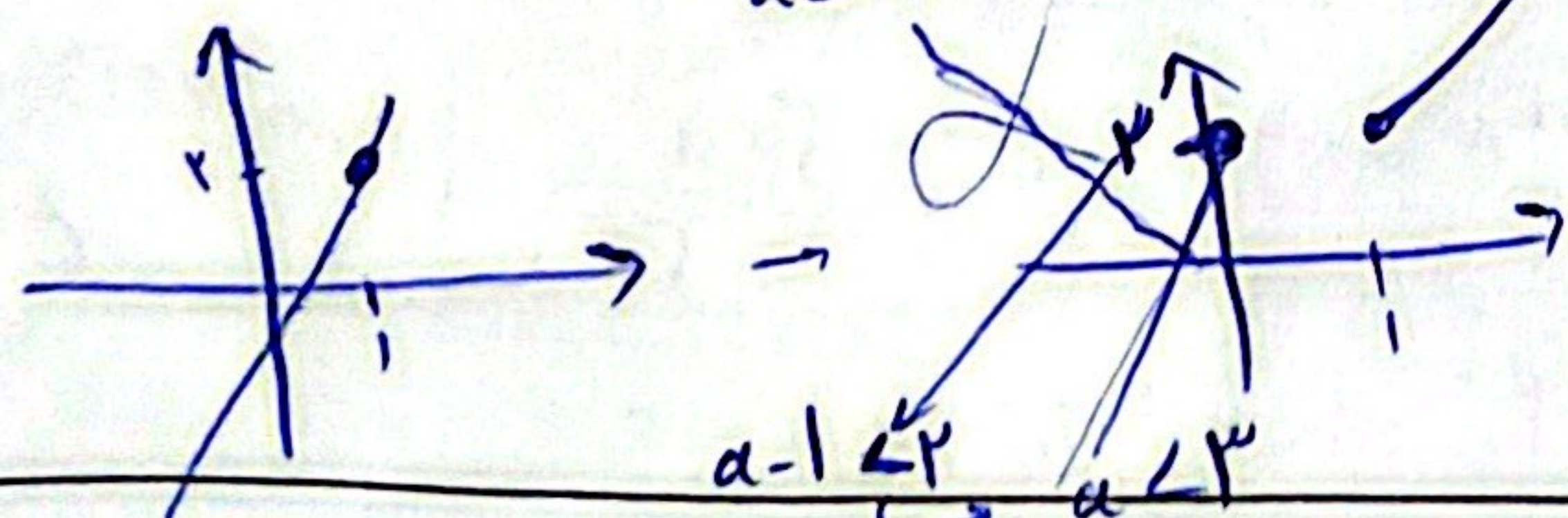
上

$\} \xrightarrow{\text{case 1}} \underline{\underline{a \leq 1}}$
 $\swarrow$ trace $\leq r$
 $a \leq r-1$
 $\swarrow$ $a \leq 1$ ✓

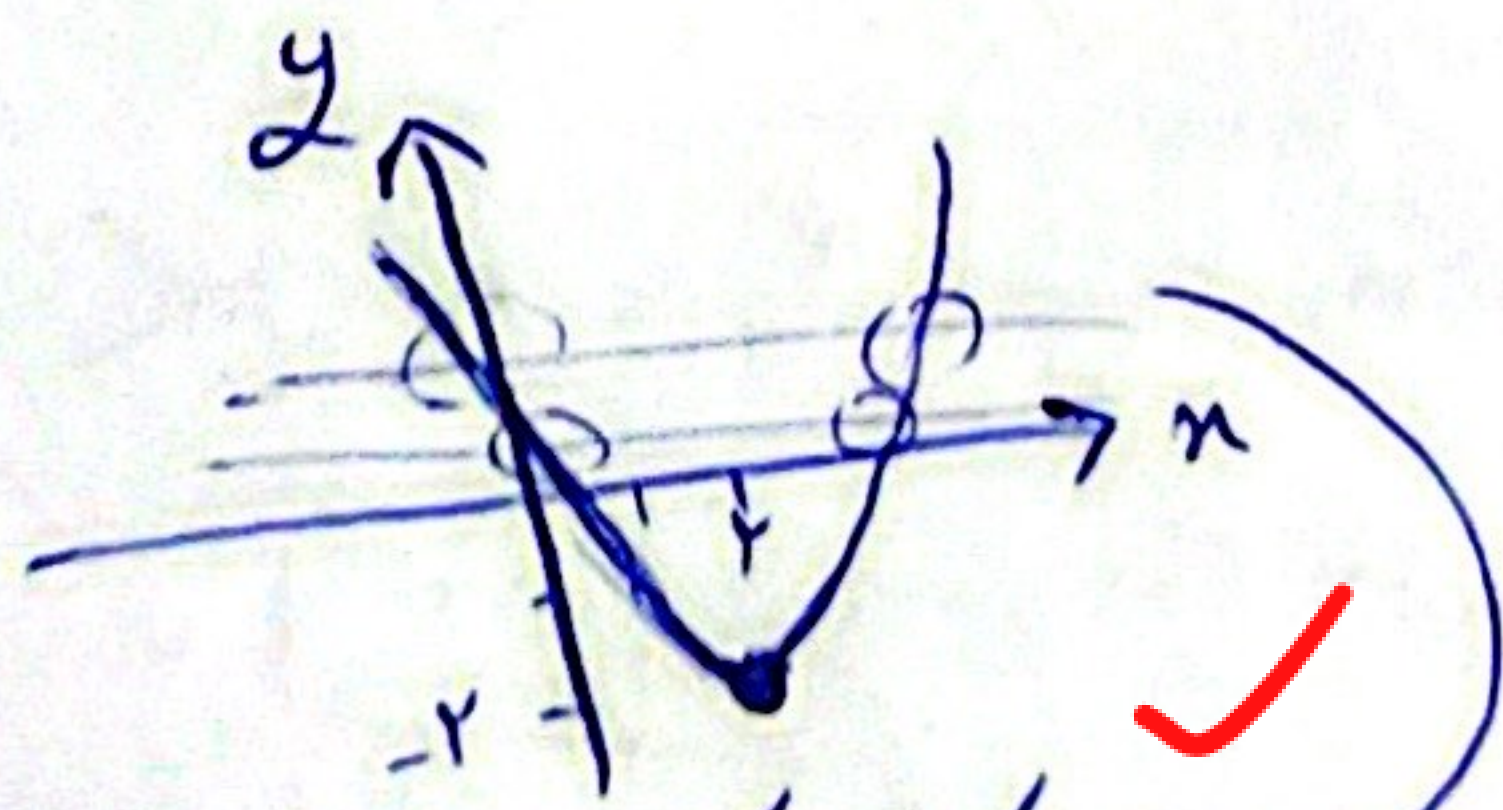


4

$$\underbrace{a > 0 \wedge a \in V}_{0 < a \in V = (a \in (0, V))}$$

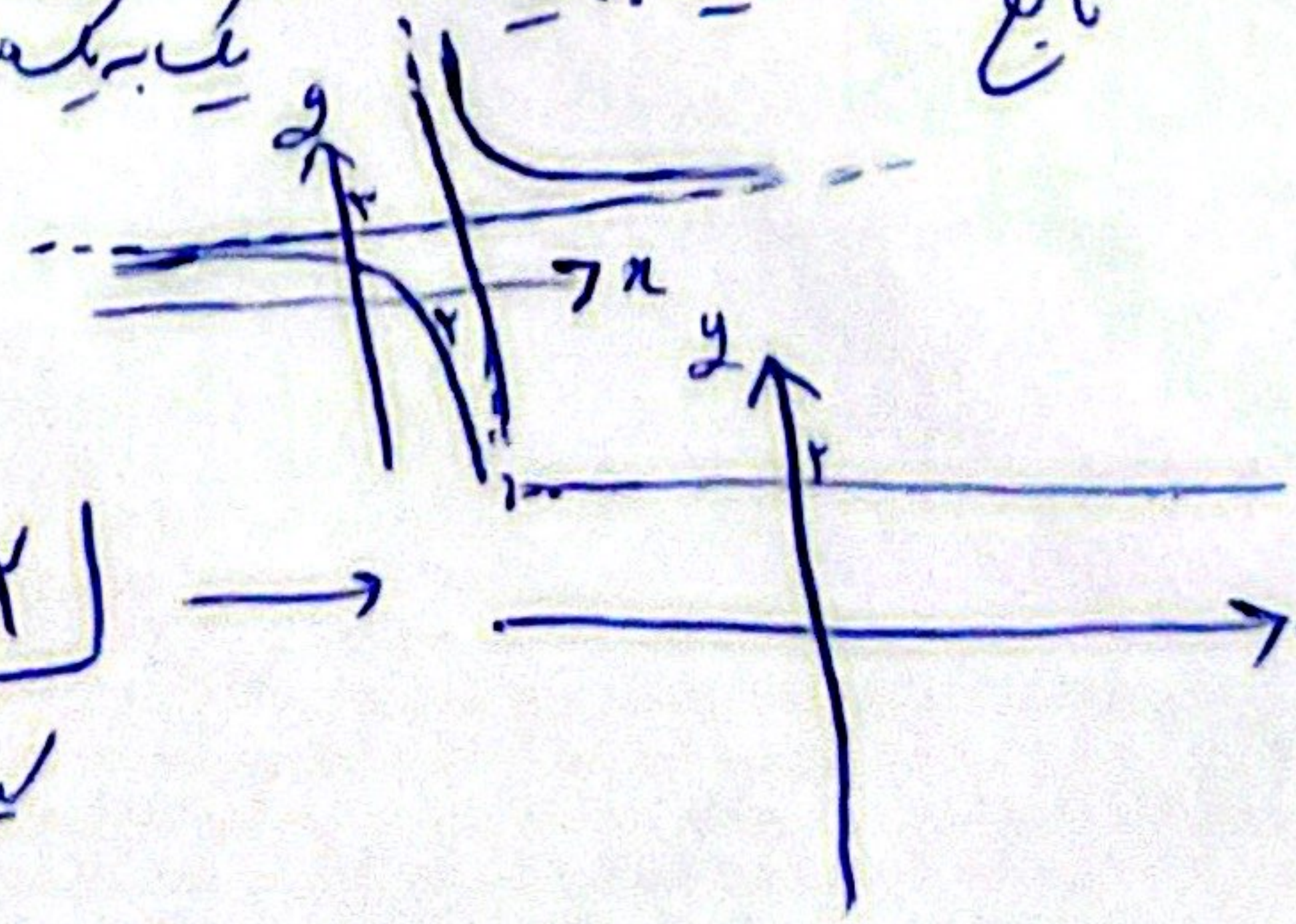


مثلاً $x = y^3 + 2 \rightarrow \sqrt[3]{x-2} = y$ ✓



$$-) y_2 n^2 - (n+1)$$

الف) $g_2 = \frac{n+1}{n-2}$ $\xrightarrow[\text{یک به یک مستقیم}]{\text{توابع همگرا فاکت}} \frac{n+1}{n-2} \xrightarrow[\text{تابع}]{\text{یک به یک}} \frac{n+1}{n-2} \rightarrow g_2 + \frac{n+1}{n-2}$

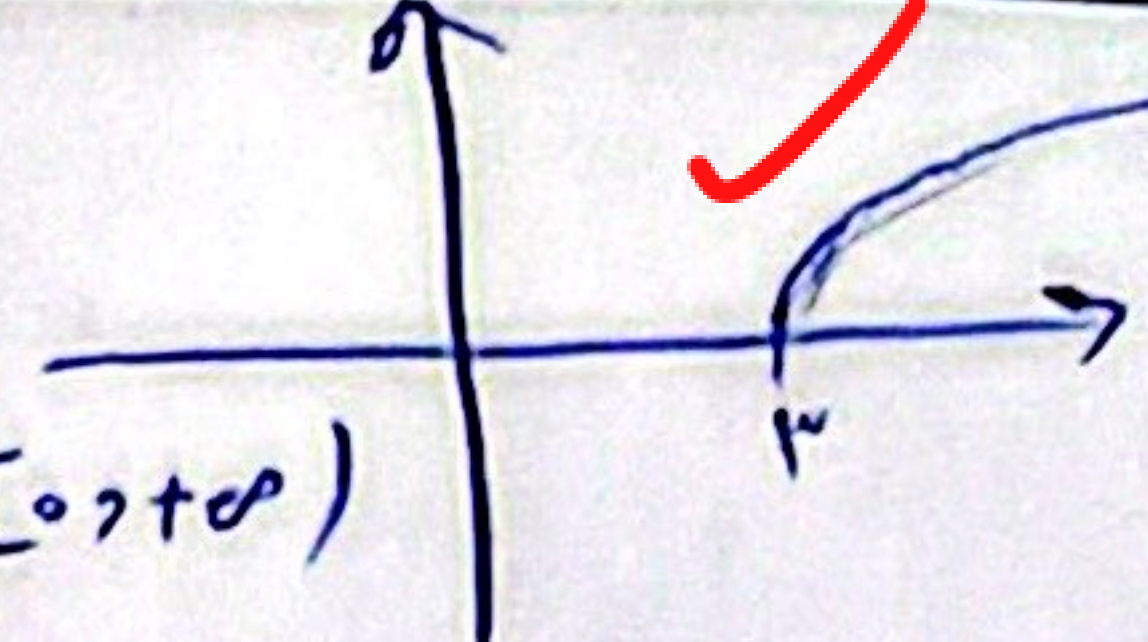


نتائج یک به یک فیت →

کے داروں کو زیرِ مشق ✓

ب۔ $y = \frac{2x+4}{n+2} = 2$ →

کے تمام مثبت (y, x)

الف) $g: \sqrt{x-3} \rightarrow$  $\rightarrow$ تابع یک به یک $\rightarrow$ تابع وارون دارد

$R_f: [0, +\infty) \rightarrow D_{f^{-1}}: [0, +\infty)$

$g: (x-3)^2 - 1$
 $g: x^2 - 2x + 3; x \in [1, +\infty)$

$D_f: [1, +\infty) \rightarrow R_{f^{-1}}: [1, +\infty)$
 $\sqrt{x+1} + 2 = y \rightarrow \sqrt{x+1} = y-2 \rightarrow x+1 = (y-2)^2 \rightarrow x = (y-2)^2 - 1$

$x^2 + 3 = y; x \geq 0$

$f(n) = n + \sqrt{n} = (\sqrt{n} + \frac{1}{\sqrt{n}})^2 - \frac{1}{n}$
 $D_f: [0, +\infty)$

$\pm \sqrt{n + \frac{1}{n}} - \frac{1}{\sqrt{n}} = \sqrt{y} \rightarrow \sqrt{n + \frac{1}{n}} - \frac{1}{\sqrt{n}} = \sqrt{y}$
 $n + \frac{1}{n} - \frac{1}{n} = y \rightarrow n = y$

$\alpha + \beta + \gamma = 1 + 1 - 1 = 1$ ✓
 $\alpha = 1, \beta = \frac{1}{y}, \gamma = -\frac{1}{n}$

$g: \frac{x_1}{\sqrt{x_1^2 - 2}} \xrightarrow{g_1 = g_2} \frac{x_1}{\sqrt{x_1^2 - 2}} = \frac{x_2}{\sqrt{x_2^2 - 2}} \xrightarrow{y = x_1} \frac{y}{\sqrt{y^2 - 2}} = \frac{x_2}{\sqrt{x_2^2 - 2}}$
 $y = \frac{x_2}{\sqrt{x_2^2 - 2}} \rightarrow \frac{y}{\sqrt{y^2 - 2}} = \frac{x_2}{\sqrt{x_2^2 - 2}} \rightarrow y \sqrt{x_2^2 - 2} = x_2 \sqrt{y^2 - 2}$
 $y^2 x_2^2 - 2 y^2 = x_2^2 y^2 - 2 x_2^2 \rightarrow -2 y^2 = -2 x_2^2 \rightarrow y = \pm x_2$
 $f_{\omega}^{-1} = \frac{\sqrt{2n}}{\sqrt{n^2 - 1}}$
 $n^2 = \frac{y^2}{y^2 - 2} \rightarrow g^2: \frac{y^2}{y^2 - 1} \rightarrow y = \pm \frac{\sqrt{2n}}{\sqrt{n^2 - 1}}$

$g(x) = \sqrt{x} - 1 \rightarrow g^{-1}(-\frac{y}{\omega}) = a \rightarrow g(a) = -\frac{y}{\omega} \rightarrow \sqrt{a} - 1 = -\frac{y}{\omega} \rightarrow \sqrt{a} = 1 - \frac{y}{\omega} \rightarrow a = (\frac{\omega - y}{\omega})^2$
 $f^{-1}(n) = \frac{n}{1+|n|} \rightarrow \frac{n}{1+n}; n > 0; \frac{n}{1-n}; n < 0$
 $f(-\frac{y}{\omega}) = a \rightarrow -\frac{y}{\omega} = \frac{n}{1+n} \rightarrow -y - yn = \omega n \rightarrow -\frac{y}{\omega} = n$
 $f^{-1}(n) = -\frac{y}{\omega} \rightarrow -\frac{y}{\omega} = \frac{n}{1-n} \rightarrow -y + yn = \omega n \rightarrow -\frac{y}{\omega} = n$ ✓
 $f(-\frac{y}{\omega}) = -\frac{y}{\omega}$

$f^{-1}(n) = \sqrt[3]{n-1}$
 $g(n) = f(n) + \sqrt{f(n)}$
 $g^{-1}(12) = a \rightarrow g(a) = 12$
 $g(a) = f(a) + \sqrt{f(a)} = 12$
 $(\sqrt{f(a)} + f)(\sqrt{f(a)} - 3) = 0$
 $\sqrt{f(a)} = 3 \rightarrow f(a) = 9 \rightarrow f^{-1}(9) = a \rightarrow \sqrt[3]{9-1} = 2 \rightarrow a = 2$ ✓
 $g^{-1}(12) = a = 2$ ✓