

(II) $f^{-1}(m) = n - \lfloor n \rfloor$

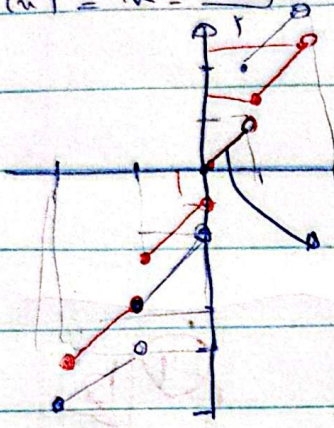
الف: $f^{-1}(m) = n - \lfloor n \rfloor$

نقد: $f^{-1}(m) = n - \lfloor n \rfloor$

$f(m) = n + \lfloor n \rfloor \rightarrow f^{-1}(m) = n - \lfloor n \rfloor \rightarrow y = \lfloor n \rfloor - \lfloor y \rfloor$ (نق)

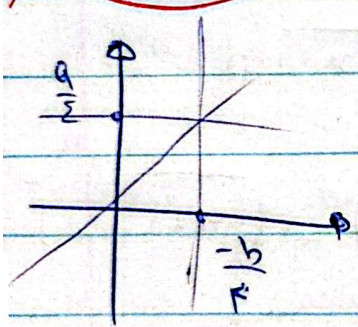
$\lfloor n \rfloor = \lfloor y + \lfloor y \rfloor \rfloor \rightarrow \lfloor n \rfloor = \lfloor y \rfloor \rightarrow \lfloor y \rfloor = \lfloor n \rfloor$ جیساً ضروری

$f^{-1}(m) = n - \lfloor n \rfloor$



$f \circ f^{-1}(m) = m \Rightarrow 2n - \frac{m}{2} = m$ (ب)

Given $f(n - \lfloor n \rfloor) \stackrel{n=\frac{m}{2}}{\Rightarrow} f(\frac{m}{2} - \frac{1}{2}) \Rightarrow f(1) = \lfloor 2 \rfloor$

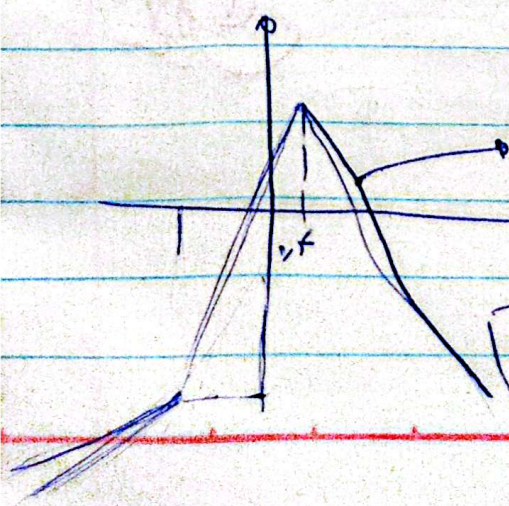


$\frac{a}{2} = -\frac{b}{2} \rightarrow a = -b = \frac{a+b}{2} \rightarrow a+b=0$ (ج)
 $\frac{a+b}{2} \Rightarrow f = f^{-1}$

$f \circ f^{-1}(m) \Rightarrow f^{-1} \circ f(m) \Rightarrow m = f^{-1}(a - \sqrt{4})$
 $\boxed{a - \sqrt{4}}$

$|2n + a| - |a - 2|$

نقد: $|2n + a| - |a - 2|$



$2n + a - a - 2 = -2n + 2$
 $y = -2n + 2 \rightarrow f^{-1}(m) = \frac{2-y}{2}$

$\boxed{y = \frac{2-n}{2}}$

$$f(m) = \frac{mn + p}{n + m + p}$$

$$f^{-1}(n) = \frac{-(m+p)n + p}{n - m}$$

Q13

$$f(m) = f^{-1}(n) \Rightarrow \frac{mn + p}{n + m + p} = \frac{-(m+p)n + p}{n - m}$$

$$\Rightarrow (m+p)n^2 + (9+4m)n - 4m - 9 = 0$$

$$\frac{1}{a} + \frac{1}{b} = \frac{a+b}{ab} = \frac{8}{p} \Rightarrow \frac{-b}{a} = -\frac{b}{c}$$

$$\frac{-(9+4m)}{-9-4m} = 1$$

$$g^{-1}(m) = af^{-1}\left(\frac{n+b}{c}\right) + d$$

Q12

$$g(g^{-1}(m)) = g\left(af^{-1}\left(\frac{n+b}{c}\right) + d\right)$$

$$m = f\left(af^{-1}\left(\frac{n+b}{c}\right) + d\right) - 1 \Rightarrow a = \frac{1}{f}$$

$$\frac{n+1}{f} = \frac{n+b}{c} + d \rightarrow c = f, b = 1, d = 0$$

$$\frac{ac+d}{fb} \Rightarrow \frac{\frac{f}{f} + 0}{1} = \boxed{\frac{f}{f}}$$

$$f(m) = m + \sqrt{m} \quad (\text{Ans}) \quad (\sqrt{m+1})^2 - 1$$

Q13

$$f^{-1}(m) \rightarrow y+1 = (\sqrt{m+1})^2 \rightarrow \sqrt{y+1} = \sqrt{m+1} + 1$$

$$\sqrt{y+1} - 1 = \sqrt{m} \rightarrow f^{-1}(\sqrt{y+1} - 1)^2 = m \rightarrow f^{-1}(\sqrt{y+1} - 1)^2$$

$$D_f = R_f^{-1} \rightarrow D_f \Rightarrow n_f, R_f^{-1} = n_f$$

$$R_f = D_f^{-1} \rightarrow R_f^{-1} = n_f, D_f^{-1} = n_f$$

$$n = (r^n) + n - 1 \xrightarrow{\text{if } n=0} r^n + n - 1 = n$$

Q14

$$r^n = 1 \rightarrow n = 0$$

$$f^{-1}(m) \geq m \xrightarrow{f^{-1}(m) \geq m}, f(f^{-1}(m)) \geq f(m) \rightarrow m \geq m + \varepsilon_m$$

تباين

Q12

$$m^2 + 14m + 14 = m + \varepsilon \rightarrow \varepsilon m^2 + 13m + 12 = 0$$

$$f^{-1}(m + \varepsilon) = g(m) \quad f(x) = \beta \rightarrow f^{-1}(\beta) = \gamma$$

Q18

$$f(\infty) = (m + \varepsilon) \rightarrow -m + \sqrt{m + \varepsilon} = m + \varepsilon \rightarrow m + \varepsilon = \sqrt{m + \varepsilon}$$

$$m^2 + 14m + 14 = m + \varepsilon \rightarrow \varepsilon m^2 + 13m + 12 = 0$$

$$g(m) = m - 3 \rightarrow \varepsilon m^2 + 13m + 12 = m - 3 \rightarrow$$

$$\varepsilon m^2 + 12m + 15 = 0 \rightarrow 12\varepsilon + 12\varepsilon = 14 \rightarrow$$

$$m_1 = \frac{-12 + \varepsilon}{\varepsilon}, \quad m_2 = \frac{-12 - \varepsilon}{\varepsilon} \quad \left\{ \begin{array}{l} \text{مع } \varepsilon \rightarrow 0 \\ \text{نقطة} \end{array} \right.$$

$$\rightarrow -1, \dots \quad -1, \dots$$

$$f = \sqrt{m} + \sqrt{4} = 2 \rightarrow f^{-1} = \sqrt{m} + \sqrt{4} = 2$$

Q12

$$f \circ f(m) = f \circ f^{-1}(m) = m \rightarrow$$

