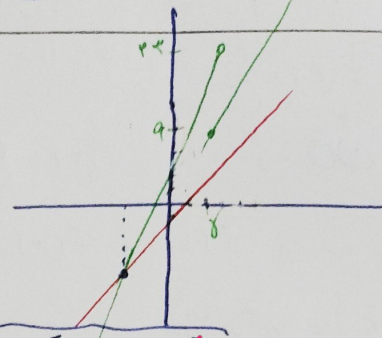


$$y = \sqrt{f(m) - m + 1} \rightarrow 3 \geq 0 \rightarrow f(m) \geq m - 1$$

$$f(m) = \begin{cases} 2m-1 & \text{if } [m] > f \\ 5m+3 & \text{if } [m] \leq f \end{cases} \rightarrow f(m) = \begin{cases} 2m-1 & \text{if } m \geq 0 \\ 5m+3 & \text{if } m < 0 \end{cases}$$



$$\rightarrow \begin{cases} 2m-1 \geq m-1 \rightarrow 2m \geq m \xrightarrow{m \geq 0} \checkmark \\ 5m+3 \geq m-1 \rightarrow 4m \geq -4 \rightarrow m \geq -1 \end{cases}$$

$$D_f = \left[-\frac{4}{5}, +\infty\right)$$

$$y = \frac{2fx^2 + 34x^2 + 18x + 3}{(5m^2 + 5m + 1)^2} \rightarrow m = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-4 \pm \sqrt{0}}{10} = -\frac{1}{5} \Rightarrow D_f = \mathbb{R} \setminus \left\{-\frac{1}{5}\right\}$$

$$\hookrightarrow D_f = \mathbb{R} - \left\{-\frac{1}{5}\right\}$$

$$\xrightarrow{\text{مخرج}} \frac{2(18x^2 + 12x^2 + 4m + 1)}{(f(x + \frac{1}{5}))^2} = \frac{2((2m)^2 + 3(2m)^2 + 3(2m) + 1)}{14(m + \frac{1}{5})^2} = \frac{2(2m+1)^2}{14(m + \frac{1}{5})^2} = \frac{2(1 + \frac{m}{5})^2}{14(m + \frac{1}{5})^2}$$

$$\Rightarrow y = \frac{2}{5(m + \frac{1}{5})} = \frac{2}{5m+1}$$

$$f(m) = \begin{cases} \frac{m^2 + 2m^2 - m - 2}{m^2 - 1} & \text{if } m \neq \pm 1 \\ \frac{am+r}{m+b} & \text{if } m = \pm 1 \end{cases} \quad f=g \rightarrow \begin{cases} D_g = \mathbb{R} \\ D_f = \mathbb{R} \end{cases}$$

$$\hookrightarrow \frac{(m-1)(m^2+m+2)}{(m-1)(m+1)} = \frac{(m+1)(m+2)}{m+1} = m+2$$

$$g(m) = m + c \rightarrow m + c = m + 2 \rightarrow c = 2$$

$$b + c = ? \quad \xrightarrow{m=\pm 1} \begin{cases} +1, \frac{a+r}{1+b} = 2 \\ -1, \frac{-a+r}{b-1} = 1 \end{cases} \rightarrow \begin{cases} a+r = 2+2b \\ -a+r = b-1 \end{cases} \rightarrow \begin{cases} a+r = 2+2b \\ a-r = 1-b \end{cases} \rightarrow \begin{cases} a = 1+2b \\ b = 2 \end{cases}$$

$$f(m) = \frac{m+1}{m-c} \rightarrow \frac{m+1}{m-c} = \frac{(m-1)(m+1)}{m^2+am+b}$$

$$g(m) = \frac{m^2-1}{m^2+am+b} \rightarrow \frac{m+1}{m-c} = \frac{(m-1)(m+1)}{(m-c)(m-c)}$$

$$f=g \quad \hookrightarrow (m-c)^2 = (m-1)^2 = m^2 - 2m + 1 \rightarrow \begin{cases} b=1 \\ a=-2 \end{cases}$$

$$a+b+c = ? \quad \hookrightarrow (-2) + (1) + (1) = 0$$

$$f(m) = (m-2)^2(m-1)$$

$$g(m) = f(m+1) + f(1-m) = ?$$

$$\hookrightarrow \begin{cases} f(m+1) = (m+1-2)^2(m+1-1) = (m-1)^2(m) \\ f(1-m) = (1-m-2)^2(1-m-1) = (-m-2)^2(-m) = (m+2)^2(-m) \end{cases}$$

$$\Rightarrow (m-1)^2(m) + (m+2)^2(-m) \rightarrow (m-1)^2(m) - (m+2)^2(m) = -12m^2$$

$$\rightarrow m^2 - 2m + 1 - m^2 - 4m - 4 = -12m^2$$

$$f\left(\frac{1-r}{t}\right) = \begin{cases} \sqrt[3]{x} + r & x \leq 0 \\ f\sqrt{x} & x > 0 \end{cases} \rightarrow 1-r=t \rightarrow r=1-t \rightarrow x = \frac{1-t}{r}$$

$$f(-1) + f(r) = 8 \rightarrow \begin{cases} f(-1) = f\sqrt{x} \rightarrow f\sqrt{1} = f \\ f(r) = \sqrt[3]{x} + r = \sqrt[3]{-1} + r = -1 + r = 7 \end{cases}$$

$$\rightarrow f(-1) + f(r) = f + 1 = 8$$

$$f(m+\sqrt{n}) = r^f + r^m$$

$$f(4) = f \xrightarrow{x=f} (f)^f + (r \times f) = r^f + r^f = 2r^f$$

$$f(m) = r^m + m$$

$$f(m-1) + f(1-m) \rightarrow f(m-1) + f(-(m-1)) = (m-1)^r + (m-1) + (-(m-1))^r + (-(m-1))$$

$$\rightarrow (m-1)^r - (m-1)^r = 0$$

$$f(m) = \sqrt{fm - ra + k} - 1 \rightarrow D_f = fm \geq ra \rightarrow m \geq \frac{ra}{f}$$

$$g(m) = \sqrt{b - fm + rk} \rightarrow D_g = b - fm \geq 0 \rightarrow fm \leq b \rightarrow m \leq \frac{b}{f}$$

$$r f - g = \left\{ \left(\frac{b}{f} \right) \right\} \xrightarrow{D_f \cap D_g} \begin{cases} m \geq \frac{ra}{f} \\ m \leq \frac{b}{f} \end{cases} \rightarrow \text{Intersection} = \left\{ \frac{b}{f} \right\}$$

$$ra - \frac{b}{f} - k = ? \rightarrow r\sqrt{f(1) - r(\frac{b}{f})} + rk - 1 - \sqrt{f - f(1) - rk} = k \rightarrow rk + r = 0 \rightarrow k = -1$$

$$f(m) = \sqrt{m-x} + n \rightarrow m-x \geq 0 \rightarrow x \leq m \rightarrow x \leq v \rightarrow m=v$$

$$g(m) = \sqrt{m+r} \rightarrow D_g = m \geq -r \rightarrow m \geq -1$$

$$D_{f \times g} = [-1, v] \rightarrow D_f \cap D_g$$

$$f-g(r) = 4\sqrt{r} \rightarrow \begin{cases} f(m) = \sqrt{v-x} + n \\ g(m) = \sqrt{m+r} \end{cases} \rightarrow m=r \rightarrow f-g = \sqrt{v-r} + n - \sqrt{r+r} = 4\sqrt{r}$$

$$r+n = 4\sqrt{r} \rightarrow r+n = 4\sqrt{r}$$

$$\rightarrow v + 4\sqrt{r} - r = 4 + 4\sqrt{r}$$

$$r+n = 4\sqrt{r} \rightarrow n = 4\sqrt{r} - r$$