

سوال (۱)

$$f\left\{\frac{mz^3}{(1,2), (n,3), (1,2), (m,2), (-1,2)}\right\}$$

$$\Rightarrow n=2$$

$$n^2 - n - 2 = 0 \Rightarrow (n-2)(n+1) = 0 \Rightarrow n=2, -1$$

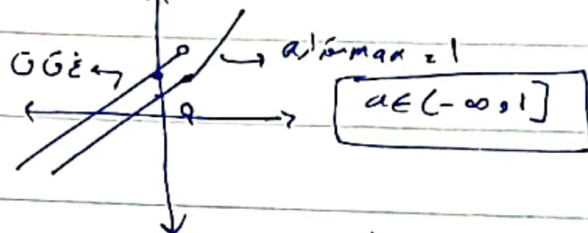
الر $n=2$ باشد $(1,2)$ و $(-1,2)$ را داریم پس قابل قبول نیست $n=2$

$$f\left\{\frac{mz^3}{(1,2), (2,3), (a, m-1), (a+2n), (m,3)}\right\}$$

$$\Rightarrow n=2$$

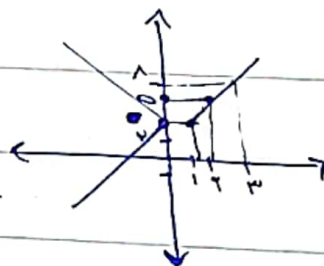
سوال (۲)

$$f(n) = \begin{cases} 3n-1; n \geq 1 \\ n+a; n < 1 \end{cases}$$



سوال (۳)

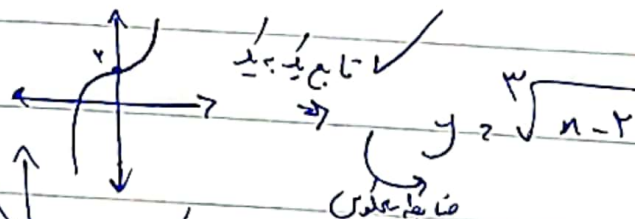
$$f(n) = \begin{cases} 3n-1; n \geq 1 \\ an+a-1; n \leq 0 \end{cases}$$



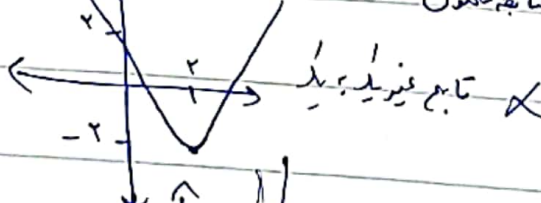
$$a-1 < 2 \Rightarrow a < 3$$

سوال (۴)

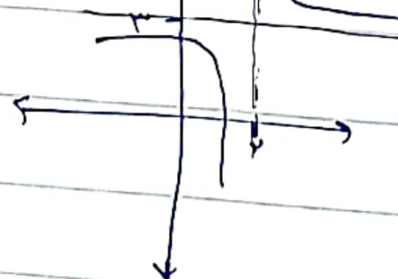
$$y = n^3 + 2$$



$$g = n^2 - f_{n+2}$$



$$y = \frac{3n+1}{n-2}$$



ضابطه عدس

سوال (۵)

$$x = \frac{y+1}{y-2}$$

$$ny - 2n = 3y + 1 \rightarrow$$

$$\frac{ny - 3y}{y} = \frac{1 + 2n}{y - 2} \rightarrow y = \frac{2n+1}{n-3}$$

$$y = \frac{2n+1}{n-3} \rightarrow D_f = \mathbb{R} - \{-2\} \rightarrow R = \{2\}$$

سوال (1)

$$f^{-1}(x) = \sqrt[3]{x-1} \quad , \quad g(x) = f(x) + \sqrt{f(x)}$$

$$x = \sqrt[3]{y-1} \rightarrow x^3 = y - 1 \rightarrow y = x^3 + 1 \rightarrow g(x) = (x^3 + 1) + \sqrt{x^3 + 1}$$

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

$$\sqrt{x^3 + 1} = t \rightarrow t^2 + t = 12 \rightarrow t^2 + t - 12 = 0 \rightarrow (t+4)(t-3) = 0 \rightarrow \begin{cases} t = -4 \\ t = 3 \end{cases}$$

$$\sqrt{x^3 + 1} = 3 \rightarrow x^3 + 1 = 9 \rightarrow x^3 = 8 \Rightarrow \underline{x = 2}$$