

$$F = \{(r, r), (n, n), (r, n^2 - n), (m, r), (-1, 4)\} \quad \begin{matrix} m=r \\ n \geq r \end{matrix}$$

$$\begin{matrix} (r, r) \\ (r, n^2 - n) \end{matrix} \left\{ \begin{matrix} n^2 - n = r \\ \rightarrow n = \begin{matrix} r \\ -1 \end{matrix} \end{matrix} \right. \quad \begin{matrix} (-1, 4) \\ (-1, 5) \end{matrix}$$

$$\begin{matrix} (r, r) \\ (m, r) \end{matrix} \left\{ m = r \right.$$

$$f \in \{(-1, 1), (1, 2), (2, 3), (a, m-1), (a, r, n), (m, r)\}$$

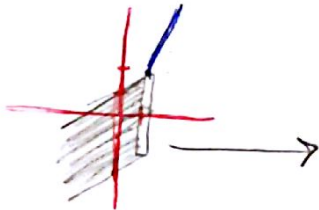
$$\begin{matrix} (r, r) \\ (m, r) \end{matrix} \left\{ m = r \right.$$

$$\begin{matrix} (1, 1) \\ (a, 1) \end{matrix} \left\{ a = 2-1 \right.$$

$$\begin{matrix} (1, r) \\ (1, n) \end{matrix} \left\{ n \geq r \right.$$

$$f(n) \begin{cases} r^{n-1} & n \geq 1 \\ a+a & n < 1 \end{cases}$$

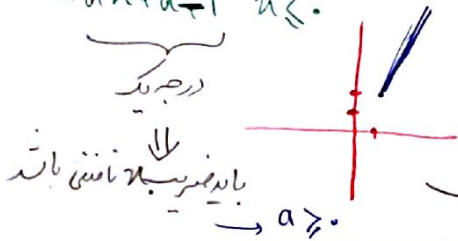
یکپارچه است



$$1+a \leq r \rightarrow a: (-\infty, 1]$$

$$f(n) \begin{cases} r^{n-1} & n \geq 1 \\ a+a-1 & n \leq 0 \end{cases}$$

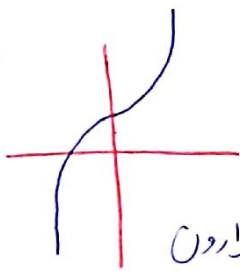
یکپارچه است



$$\begin{matrix} a(0)+a-1 \leq r \\ a \leq r \end{matrix} \rightarrow a: [0, r]$$

$$y = x^2 + 2$$

شکل



تابع یکپارچه است

$$y = \sqrt[3]{9x-2} \quad \text{واردون}$$

$$y = x^2 - 5x + 2$$

$$y = x^2 - 5x + 5 - 3$$

$$y = (x-2)^2 - 2$$

$$\begin{matrix} \downarrow \text{مثال نقیض} \\ x = 3, 4 \\ y = -1 \end{matrix}$$

تابع یکپارچه است

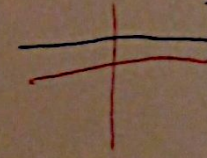
$$y = \frac{2n+1}{n-2}$$

$$D = \mathbb{R} - \{2\}$$

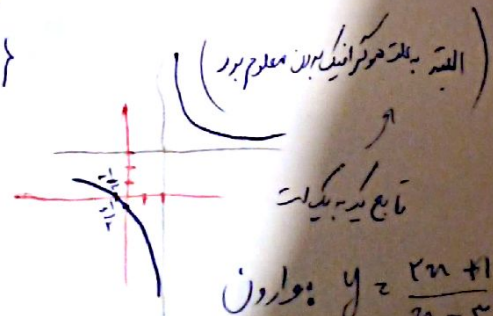
$$R = \mathbb{R} - \{3\}$$

$$y = \frac{5+2n}{n+2} = 2$$

تابع یکپارچه است



شکل



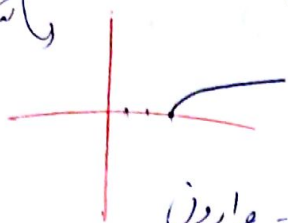
$$y = \frac{2n+1}{n-2} \quad \text{واردون}$$

(البته بداند که توانسته این معلوم برد)

تابع یکپارچه است

$$y = \sqrt{u-r}$$

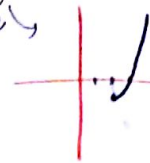
شکل



$$y = u-r \quad u \in [0, +\infty)$$

$$y = u^2 - 2u + 2 \quad u \in [1, +\infty)$$

شکل



تابع یکبار

نقشه

$$y = \sqrt{u+1} + 2 \quad u \in [1, +\infty)$$

$$f(u) = u + \sqrt{u} \quad \frac{0}{0} \quad f^{-1}(u) = a + b - \sqrt{a-c}$$

$$a + 2b + 4c = ?$$

$$y = u + \sqrt{u} \quad \frac{0}{0} \rightarrow u' = y' + \sqrt{y'}$$

$$f(1) = 2$$

$$f(r) = r + \sqrt{r}$$

$$\sqrt{r}a + \sqrt{r-c} - \sqrt{r-c} = 1$$

$$f'(r) = 1 \rightarrow r + a + b - \sqrt{r-c} = 1$$

$$f'(r, \sqrt{r}) = r \rightarrow r + \sqrt{r}a + b - \sqrt{r-c} = r$$

$$y = \frac{u}{\sqrt{u^2-r}}$$

نمی توان ذهنی باشد زیرا در این صورت ما نمی توانیم به توان 2 برسانیم

$$y = \frac{u_1}{\sqrt{u_1^2-r}}$$

$$\left\{ \begin{array}{l} \frac{u_1}{\sqrt{u_1^2-r}} = \frac{u_r}{\sqrt{u_r^2-r}} \\ \frac{u_1^2}{u_1^2-r} = \frac{u_r^2}{u_r^2-r} \end{array} \right.$$

$$u_1^2 u_r^2 - r u_1^2 = u_1^2 u_r^2 - r u_r^2 \rightarrow u_1^2 = u_r^2$$

$$u_1 = \pm u_r$$

یک بار

$$f^{-1}(u) = \frac{u}{1+|u|}$$

$$\frac{-r}{\omega} = \frac{u}{1+|u|} \rightarrow \omega u = -r - r|u|$$

$$g(u) = \sqrt{u} - 1$$

$$\frac{-r}{\omega} = \sqrt{u} - 1$$

$$\sqrt{u} = \frac{r}{\omega}$$

$$u = \frac{r^2}{\omega^2}$$

$$\begin{array}{l} \omega u = -r \\ u = \frac{-r}{\omega} \end{array} \quad \begin{array}{l} \omega u = -r \\ u = \frac{-r}{\omega} \end{array}$$

$$f\left(\frac{-r}{\omega}\right) + g^{-1}\left(\frac{-r}{\omega}\right)$$

$$\frac{-r}{r} + \frac{r}{r\omega} = \frac{-r}{r\omega}$$

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

$$g^{-1}(r) = ? = r$$

$$g(u) = f(u) + \sqrt{f(u)}$$

$$g(u) = u^2 + 1 + \sqrt{u^2 + 1}$$

$$12 = u^2 + 1 + \sqrt{u^2 + 1} \xrightarrow{t=u^2} t + \sqrt{t+1} = 11$$

$$t = 1$$

$$u^2 = 1 \rightarrow u = 1$$