

اگر $\sqrt{ax+b}$ از $\sqrt{ax+b}$ بزرگتر باشد معادله درجه دوم معکوس باشد

$$\rightarrow \sqrt{ax+b}$$

$$\hookrightarrow \sqrt{ax+b} \geq 0 \Rightarrow ax+b \geq 0$$

$$a=2 \quad \leftarrow$$

$$[2] \rightarrow -\frac{b}{a} = -\frac{b}{2} = -4 \Rightarrow b = -8$$

3

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$$D_f = \mathbb{R} \quad \leftarrow \text{مقادیر صحیح}$$

$$x^2 + 2x + (2-m^2) \geq 0$$

$$\rightarrow \Delta \leq 0 \rightarrow 1 - 1(2-m^2) \leq 0$$

$$1-2+m^2 \leq 0 \rightarrow m^2-1 \leq 0 \rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$$

$$+1 - (-1) = 2$$

نقطه صفر
نقطه صفر

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$$x - x^2 \geq 0 \rightarrow x \geq x^2 \rightarrow -1 \leq x \leq 1$$

$$\rightarrow D_f = [-1, 1] \cap \mathbb{Z} = \{-1, 0, 1\} \rightarrow \text{دو عدد}$$

$$[x] + [-x] + 1 \neq 0$$

$$+ \rightarrow [1, 2] + [-1, 2] + 1 \neq 0$$

$$1 - 2 + 1 = 0$$

مجموعه اعداد صحیح

$$\rightarrow \mathbb{Z} \rightarrow [x] + [-x] = 0 \rightarrow 2 + 1 = 3$$

$$\rightarrow x \notin \mathbb{Z} \rightarrow [x] + [-x] = -1 \rightarrow 2 - 1 + 1 = 2$$

مجموعه اعداد صحیح
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مجموعه اعداد صحیح

3

$$x^3 + 3x^2 \geq 0 \rightarrow x^2(x+3) \geq 0 \rightarrow \frac{-3}{-1+3+1} \rightarrow D_f = [-3, +\infty)$$

$$\begin{matrix} (+1) & (-1) & (0) & (3) \\ \uparrow & \uparrow & \uparrow & \uparrow \end{matrix}$$

$$\text{ب) } \frac{(x-1)(x+1)(x^2(x-3))}{(x-1)(x^2+x+1)}$$

$$\downarrow (+1)$$

$$\Delta < 0 \rightarrow \text{ریشه ندارد}$$

$$\rightarrow \frac{-1}{+1-1-1} = \frac{-1}{-1} = 1 \rightarrow D_f = (-\infty, -1] \cup [2, +\infty) \cup \{0\}$$

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$$|x-2| - 3 \geq 0 \quad |x-2| \geq 3 \rightarrow x-2 \geq 3 \rightarrow x \geq 5 \quad \text{یا} \quad x-2 \leq -3 \rightarrow x \leq -1$$

$$\text{ب) } 4 - |2-x| \geq 0 \quad 4 \geq |2-x| \rightarrow -4 \leq 2-x \leq 4 \rightarrow -4 \leq -x \leq 2 \rightarrow 4 \leq x \leq -2$$

$$\Rightarrow D_f = [-2, 4]$$

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$$|1 - x| > 0 \quad |x| < 1$$

$$+ \rightarrow (0, 1]$$

$$\cdot \rightarrow \checkmark \quad \cap \rightarrow (-\infty, 1] = D_f$$

$$- \rightarrow \checkmark$$

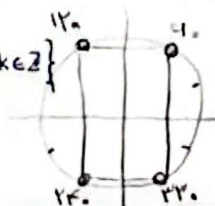
$$|r - |x - d|| > 0 \rightarrow r > |x - d| \rightarrow -r \leq x - d \leq r \rightarrow -r \leq x \leq r \Rightarrow D_f = [r, r] - \{r, 0\}$$

$$r - |x - d| - 1 \neq 0 \rightarrow r - |x - d| \neq 0 \rightarrow r \neq |x - d| \rightarrow x - d \neq r \rightarrow x \neq r$$

$$\rightarrow d - x \neq r \rightarrow x \neq r$$

$$|1 - \cos x| \neq 0 \rightarrow D_f = \mathbb{R} - \left\{2k\pi + \frac{\pi}{2}, 2k\pi - \frac{\pi}{2}\right\} \text{ or } D = \mathbb{R} - \left\{k\pi + \frac{\pi}{2} \mid k \in \mathbb{Z}\right\}$$

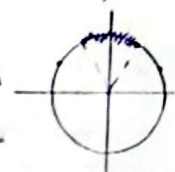
$$|1 - \cos x| \neq \frac{1}{4} \rightarrow D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4}\right\} \text{ or } D = \mathbb{R} - \left\{2k\pi \pm \frac{\pi}{4} \mid k \in \mathbb{Z}\right\}$$



$$|1 - r \sin x| > 0 \rightarrow r \sin x > 1 \rightarrow \sin x > \frac{1}{r} \rightarrow D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}\right]$$



$$|1 - r \cos x| > 0 \rightarrow |r \cos x| > \frac{1}{r} \rightarrow \cos x > \frac{1}{r} \rightarrow D_f = \left[2k\pi - \frac{\pi}{4}, 2k\pi + \frac{\pi}{4}\right]$$



$$r(x-1) > 0 \rightarrow r(x-1) > 1 \rightarrow x > \frac{1}{r}$$

$$\cap \rightarrow D_f = (1, r]$$

$$\log_{\frac{1}{2}}(r(x-1)) > 0 \rightarrow r(x-1) > 1 \rightarrow x > 1$$

$$\log_{\frac{1}{2}} \log_{\frac{1}{2}}(r(x-1)) > 0 \Rightarrow \log_{\frac{1}{2}}(r(x-1)) < 1 \rightarrow r(x-1) < 2 \rightarrow r(x-1) < 4 \rightarrow x < \frac{5}{r}$$

فمنه $\log_{\frac{1}{2}} \log_{\frac{1}{2}}(r(x-1)) > 0$ $\rightarrow$ $\log_{\frac{1}{2}}(r(x-1)) < 1$ $\rightarrow$ $r(x-1) < 2$ $\rightarrow$ $r(x-1) < 4$ $\rightarrow$ $x < \frac{5}{r}$

$$|r \cos x + 1| > 0 \rightarrow r \cos x > -1 \rightarrow \cos x > -\frac{1}{r} \Rightarrow D_f = \left(2k\pi - \frac{\pi}{r}, 2k\pi + \frac{\pi}{r}\right)$$

$$\frac{x-1}{x+1} > 0 \rightarrow \frac{-1}{x+1} > 0 \quad x < -1$$

$$x > 1$$

$$\cap \rightarrow D_f = (-\infty, -1)$$

$$\log_{\frac{1}{2}} \frac{x-1}{x+1} > 0 \quad \frac{x-1}{x+1} > 1 \rightarrow \frac{-1}{x+1} > 1 \Rightarrow x+1 < -1 = x < -2$$