

$$f(x) = \sqrt{(a-2)x^2 + ax + b}$$

$$(a-2)x^2 + ax + b \geq 0$$

$$(a-2)(3)^2 + a(3) + b = 0 \quad \text{باید یک ضرایب مثبت باشد!} \quad (5)$$

$$9(a-2) + 3a + b = 0$$

$$9a - 18 + 3a + b = 0 \Rightarrow 12a + b - 18 = 0 \Rightarrow b = 18 - 12a$$

$$1) x^2 + 2x + 2 - m^2 \geq 0$$

$$2) \Delta \leq 0 \Rightarrow b^2 - 4ac \leq 0 \Rightarrow 4m^2 - 4 \leq 0 \Rightarrow m^2 - 1 \leq 0 \Rightarrow m^2 \leq 1 \Rightarrow -1 \leq m \leq 1$$

$$m_{\max} = 1$$

$$m_{\min} = -1$$

$$\left. \begin{array}{l} m_{\max} = 1 \\ m_{\min} = -1 \end{array} \right\} 1 - (-1) = 2 \quad (2)$$

$$1) f - x^2 \geq 0 \Rightarrow x^2 \leq f \Rightarrow -2 \leq x \leq 2 \Rightarrow \text{if } x \in \mathbb{Z} \Rightarrow x = \{-2, -1, 0, 1, 2\}$$

$$2) [x] + [-x] + 1 \neq 0 \Rightarrow \text{برای هر عدد غیر صحیح} \Rightarrow x = -2, -1, 0, 1, 2 \quad \text{عدد صحیح} \quad (2)$$

$$\rightarrow x \in \mathbb{Z} \checkmark$$

$$\rightarrow x \notin \mathbb{Z} \times \text{ق ق}$$

$$\text{الف) } g = \sqrt{x^3 + 3x^2} \Rightarrow x^3 + 3x^2 \geq 0 \Rightarrow x^2(x+3) \geq 0$$

$$\text{باید مثبت} \quad x+3 \geq 0 \Rightarrow x \geq -3 \Rightarrow D_f = [-3, +\infty)$$

$$\text{ب) } g = \sqrt{\frac{(x^2-1)(x^3-3x^2)}{x^3-1}} \Rightarrow \frac{x^2(x-1)(x+1)(x-3)}{(x-1)(x^2+x+1)} \geq 0 \Rightarrow \begin{array}{c} -1 \quad 0 \quad 1 \quad 3 \\ + \quad - \quad - \quad + \end{array}$$

$$\Delta \leq 0$$

$$D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)$$

$$\text{الف) } y = \sqrt{|x-2|} - 3 \Rightarrow |x-2| - 3 \geq 0 \Rightarrow |x-2| \geq 3 \Rightarrow x-2 \geq 3, x-2 \leq -3$$

$$D = (-\infty, -1] \cup [5, +\infty) \quad \leftarrow x \geq 5, x \leq -1 \quad (2)$$

$$\text{ب) } \sqrt{f - |2-x|} \Rightarrow$$

$$f - |2-x| \geq 0 \Rightarrow |2-x| \leq f \Rightarrow |x-2| \leq f \Rightarrow -f \leq x-2 \leq f \Rightarrow -2 \leq x \leq 2$$

$$D = [-2, 2]$$

$$\text{---)} \quad r - |x-0| \geq 0 \Rightarrow |x-0| \leq r \Rightarrow -r \leq x \leq r \Rightarrow r \leq x \leq 1$$

ii) $y = \frac{\sin^2 x - 1}{\cos x} \Rightarrow \cos x \neq 0$  $Df = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$ - V

$$Df = R - \left\{ r_k \pi - \frac{\pi}{r}, r_k \pi + \frac{\pi}{r} \right\}$$

$$|x+1| - |x+r| \quad (x+1)^r = (x+r)^r \Rightarrow x^r - rx + 1 = 0$$

$$Df = 1R - \left\{ -\frac{r}{x} \right\} \leftarrow \{ \Rightarrow x^r - rx - rf = 0 \Rightarrow (x-r)(x+r) \xrightarrow{+r} -fr$$

$$f(x) = \sqrt{\frac{1}{\ln 10} \log \frac{(r_n - 1)}{\omega}} \Rightarrow 1) r_n - 1 > 0 \Rightarrow r_n > 1 \Rightarrow n > \frac{1}{r} \quad -9$$

(v) $\log_a(r_{n-1}) > 0 \Rightarrow r_{n-1} > a^0 \Rightarrow r_{n-1} > 1 \Rightarrow r_n > r \Rightarrow n > 1$

$$(P) \log_{\frac{1}{2}} \log_2^{(r_{n-1})} \geq 0 \Rightarrow \log_2^{(r_{n-1})} \leq 1 \Rightarrow r_{n-1} \leq 2 \Rightarrow r_n \leq 4$$

$0 \wedge 0 \wedge 0 \Rightarrow Df = (1, 2)$ ✓ (2) $x \leq 3$

الف) $y = \log(r \cos x + 1) \Rightarrow r \cos x + 1 > 0 \Rightarrow r \cos x > -1 \Rightarrow \cos x > -\frac{1}{r}$ -10

 $\Rightarrow Df = (rk_x - \frac{f_x}{q}, rk_x + \frac{f_x}{q})$

$$\text{ب) } y = \sqrt{\log \frac{n-1}{n+1}} \Rightarrow \frac{n-1}{n+1} \geq 1 \Rightarrow \frac{n-1-n-1}{n+1} \geq 0 \Rightarrow \frac{-2}{n+1} \geq 0$$

$$\Rightarrow x+1 < 0 \Rightarrow x < -1 \Rightarrow Df = (-\infty, -1)$$

(۱) چون دامنه تک بازه است پس عبارت نمی تواند یک سهم باشد و باید یک خط باشد!

$$a - 2 = 0 \rightarrow a = 2 \rightarrow f(x) = \sqrt{2x + b} \quad \underline{D_f = [-3, +\infty)} \rightarrow 2(3) + b = 0 \rightarrow \boxed{b = -6}$$