

۱۵/۷۵ مرتب و شمرینویسی!

$$f(x) = \sqrt{(a-1)x^2 + ax + b} \geq 0$$

$$[1/3 + \infty)$$

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$$f(x) = \sqrt{x^2 + 12x + 12 - m^2} \geq 0$$

$$b^2 - 4ac < 0$$

$$4 - 12m^2 < 0$$

$$4m^2 - 4 < 0 \rightarrow 4m^2 < 4 \rightarrow m^2 < 1 \rightarrow -1 < m < 1$$

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

$$-1 < m < 1$$

$$f(x) = \sqrt{4 - x^2} \quad 4 - x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$$

$$[x_1] + 1 \neq 0 \rightarrow [x_1] + [-x_1] + 1 = 1$$

$$1 \Rightarrow \{ -2, -1, 0, 1, 2 \}$$

$$y = \sqrt{x^3 + 12x^2} \rightarrow x^2 + 12x \geq 0 \rightarrow x^2(x + 12) \geq 0 \rightarrow x \geq 0 \text{ or } x \leq -12$$

به خاطر توان ۲ ریشه منفی است!

$$y = \sqrt{(x^2 - 1)(x^3 - 12x^2)} \geq 0$$

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

$$x^3 - 12x^2 = x^2(x-12)$$

$$-1 \quad 0 \quad 1 \quad 12$$

$$(-\infty, -1] \cup [1, 12) \cup [0, \infty)$$

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$$y = \sqrt{a-r} \cdot r \geq 0 \quad |a-r| \geq r \rightarrow a-r \geq r$$

$$a-r \leq -r \rightarrow a \leq -1 \quad \text{[cos, 1]} \quad \text{[cos, 1]}$$

$$y = \sqrt{r-|r-a|} \quad r^2 - |r-a| \geq 0 \rightarrow |r-a| \leq r$$

$$-r \leq r-a \leq r \rightarrow -r \leq -a \leq r \rightarrow a \leq r$$

$$y^2 \sqrt{1-a} |a| \geq 0 \quad -a |a| \geq -1 \rightarrow |a| \leq 1 \quad \text{[cos, 1]}$$

$$y^2 = \frac{1}{\sqrt{r-|a-r|}} - 1 \neq 0 \quad r-|a-r| \neq 0 \rightarrow |a-r| \neq r \rightarrow a \neq 2r$$

$$\sqrt{r-|a-r|} \neq 0 \quad r-|a-r| \geq 0 \quad |a-r| \leq r \rightarrow -r \leq a-r \leq r$$

$$+r \leq a \leq r \rightarrow a = r \rightarrow [r, r] \quad \text{[cos, 1]}$$

$$y^2 \frac{\sin^2 \theta - 1}{\cos^2 \theta} = \frac{a \cos \theta}{\cos^2 \theta} \rightarrow R = \left\{ \frac{1}{\cos \theta} + \frac{r}{\cos^2 \theta} \right\}$$

$$y^2 \frac{a \cos \theta}{r \cos \theta - 1} \quad r \cos \theta - 1 \neq 0 \rightarrow \cos \theta \neq \frac{1}{r} \rightarrow R = \left\{ \frac{1}{\cos \theta} + \frac{r}{\cos^2 \theta} \right\}$$

$$y^2 = \frac{a \cos \theta}{r \cos \theta - 1} \neq 0$$

$$|r \cos \theta + 1| = |r \cos \theta + r| \neq 0 \rightarrow r \cos \theta + 1 + r = r \cos \theta + 1 + r$$

$$r \cos \theta - 1 \neq 0 \rightarrow r \cos \theta \neq 1 \rightarrow r \cos \theta = 1$$

SABA

$$(a-r)(a+r) = 0 \quad a = \frac{r}{r} = 1 \quad R = \left\{ \frac{1}{\cos \theta} + \frac{r}{\cos^2 \theta} \right\}$$

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

$$a - 2 = 0 \rightarrow a = 2 \rightarrow f(n) = \sqrt{2n + b} \xrightarrow{Df = [-3, +\infty)} f(3) + b = 0 \rightarrow \boxed{b = -6}$$

$$\text{الف - ۴} \quad n^3 + 3n^2 \geq 0 \rightarrow n^2(n + 3) \geq 0 \rightarrow \frac{-3}{-\phi + \phi +} \rightarrow Df = [-3, +\infty)$$

$$\text{ب - ۴} \quad 3 - |n - 5| \geq 0 \rightarrow |n - 5| \leq 3 \rightarrow -3 \leq n - 5 \leq 3 \rightarrow 2 \leq n \leq 8$$

$$\sqrt{3 - |n - 5|} - 1 \neq 0 \rightarrow \sqrt{3 - |n - 5|} \neq 1 \rightarrow 3 - |n - 5| \neq 2 \rightarrow |n - 5| \neq 2 \rightarrow n \neq 7, 3$$

$$Df = [2, 8] - \{3, 7\} = [2, 3) \cup (3, 7) \cup (7, 8]$$

$$\text{۹) } \log_{1/5} \log_a^{2n-1} \rightarrow 2n-1 > 0 \rightarrow \boxed{n > \frac{1}{2}}$$

$$\log_a^{2n-1} > 0 \rightarrow 2n-1 > 0 \rightarrow 2n-1 > 1 \rightarrow \boxed{n > 1}$$

$$\log_{1/5} \log_a^{2n-1} \geq 0 \xrightarrow{\text{منابعی دارد! حجت عوض! مستند!}} \log_a^{2n-1} \leq (1/5) \rightarrow \log_a^{2n-1} \leq 1 \rightarrow 2n-1 \leq 5 \rightarrow 2n \leq 6 \rightarrow \boxed{n \leq 3}$$

$$\text{پس } Df = (1, 3]$$