

الف)
$$\frac{x^3 + 3}{x^3 + 3x^2 - 12x + 3}$$

$$\begin{array}{r} x^3 + 3x^2 - 12x + 3 \overline{) 2x^3 + 3x^2 - 12x + 3} \\ \underline{2x^3 + 3x^2 - 12x + 3} \\ 0 \end{array}$$

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$$\frac{2x+3}{x^3 + 3x^2 - 12x + 3}$$

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① $x \geq 1$

$$x^2 - 5x + 5 - 2x + 5 = 0$$

$$x^2 - 7x + 10 = 0$$

$$(x-2)(x-5) = 0$$

$$x = 2, 5$$

نقص ندارد ✓

② $x < 1$

$$x^2 + 5x - 5 - 2x + 5 = 0$$

$$x^2 + 3x = 0$$

$$x(x+3) = 0$$

$$x = 0, -3$$

بازم نقص ندارد ✓

الف)
$$\sqrt{[-x]} - 2$$

$$[-x] - 2 \geq 0$$

$$[-x] \geq 2$$

$$(-\infty, -2]$$

ب)
$$\frac{5x^2 + 4}{[x]^2 - 2[x] - 3}$$

$$[x] = t$$

$$t^2 - 2t - 3 \neq 0$$

$$(t-3)(t+1) \neq 0$$

$$t \neq 3, -1$$

$$[x] \neq 3, -1$$

الف)
$$\sqrt{[x + \frac{1}{3}]} + [x + \frac{2}{3}]$$

$$\sqrt{[x + \frac{1}{3}]} + [x + \frac{2}{3}] \geq 0$$

$$[x + \frac{1}{3}] \geq 0$$

$$x \geq -\frac{1}{3}$$

$$D_f = [-\frac{1}{3}, +\infty)$$

ب)
$$\sqrt{[x - \frac{1}{3}]} + [\frac{1}{3} - 2x]$$

$$D_f = \{x \mid x = k - \frac{1}{3}, k \in \mathbb{Z}\}$$

$$x - \frac{1}{3} \in \mathbb{Z}$$

$$x = \frac{1}{3} + k$$

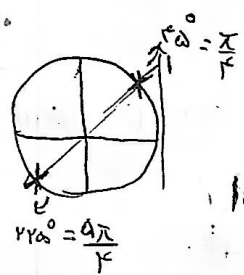
$$D_f = \{\frac{1}{3} + k \mid k \in \mathbb{Z}\}$$

یازدهم پسر

الف ۳

محل پارامتری

$$y = \frac{\cot x + 1}{\tan x + 1}$$



$$\mathbb{R} - \{k\pi + \frac{\pi}{4}\}$$

$$y = \sqrt{1 - 4 \sin^2 x}$$

$$1 - 4 \sin^2 x \geq 0$$

$$4 \sin^2 x \leq 1$$

$$2 \sin x \leq 1 \rightarrow \sin x \leq \frac{1}{2}$$



$$\mathbb{R} - \left(\frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi \right)$$

$$y = \sqrt{2 \sin x - 1}$$

$$2 \sin x - 1 \geq 0$$

$$\sin x \geq \frac{1}{2}$$

$$\sin x \geq \frac{1}{2}$$



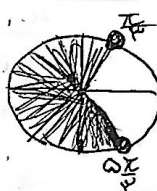
$$\left[\frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi \right]$$

$$y = \sqrt{1 - 2 \cos x}$$

$$1 - 2 \cos x \geq 0$$

$$2 \cos x \leq 1$$

$$\cos x \leq \frac{1}{2}$$



$$\left[\frac{2\pi}{3} + k\pi, \frac{4\pi}{3} + k\pi \right]$$

$$y = 2x \leq \sin(x + 2x + 1)$$

$$y = \sqrt{5 - 2x}$$

0 < 1

$$-1 \leq x + 2x + 1 \leq 1$$

$$x + 2x + 1 \geq -1$$

$$x + 2x + 1 \geq -1$$

$$x + 2x + 2 \geq 0$$

$$(x+1)(x+2) \geq 0$$

$$\frac{-2 \quad -1}{4 \quad 0 \quad 4}$$

$$D_f = [-2, -1] \cup [0, \infty)$$

$$-1 \leq \sqrt{5 - 2x} \leq 1$$

$$5 - 2x \leq 1$$

$$-2x \leq -4$$

$$2x \geq 4$$

$$x \geq 2$$

$$[2, \infty)$$

$$y = \log_r(1 - \log_3 x)$$

$$1 - \log_3 x > 0$$

$$\log_3 x < 1$$

$$x > 0 \quad D_f = \emptyset$$

$$y = \log_r(1 - \log_{\frac{1}{3}} x)$$

$$1 - \log_{\frac{1}{3}} x > 0$$

$$\log_{\frac{1}{3}} x < 1$$

$$x > 0$$

$$D_f = \mathbb{R}^+$$

$$y = \sqrt{x^2 - 2x}$$

$$[1, 6]$$

$$D_f = \left\{ \frac{xk - \omega}{x - yk} \mid k \in \mathbb{W} \right\}$$

$$k = \frac{3x + \omega}{x^2 + 4}$$

$$3xk + 4k = 3x + \omega$$

$$\frac{xk - \omega}{x - yk} = x \implies k - \omega = 3x - 2xk$$

$$fk - \omega = x(3 - yk)$$

$$-(x-3)(x+1) - 2x^2 - 3 > 0$$

$$\frac{1}{-49} \quad \frac{1}{-49} \quad \frac{1}{-49}$$