

$$2(m^2 - m + 1) + (y^2 + 4y + 9) = 0 \rightsquigarrow 2m^2 - 2m + 2 + y^2 + 4y + 9 = 0$$

$$\downarrow$$

$$(m-1)^2 + (y+2)^2 \rightarrow (1, -2) \quad K = 2 + 9 = 11$$

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$$a^2 + 4a - 2a + a + 2 \rightarrow a^2 + a - 2 = 0$$

$$(a+2)(a-1) = 0 \quad \begin{cases} a = -2 \rightarrow a < 0 \quad \times \\ a = 1 \rightarrow a > 0 \quad \checkmark \end{cases}$$

$\Leftrightarrow$ در نقطه با هم برابرند

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$$f(m) = \begin{cases} m^2 + 5m, & m > 1 \\ 2m + 3, & m \leq 1 \end{cases} \rightarrow f(1) = 2(1) + 3 = 5$$

$$|m+1| > 2 \quad \begin{cases} m+1 > 2 \Rightarrow m > 1 \\ m+1 < -2 \Rightarrow m < -3 \end{cases}$$

$$|a-b| = a-4 \Rightarrow a+b = 28$$

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$$4m - a > 0 \rightarrow m > \frac{a}{4} \rightarrow a = 12$$

$$(D_f = \{2\})$$

$$b - 3m > 0 \rightarrow m < \frac{b}{3} \rightarrow b = 4$$

$$\boxed{\frac{b}{a} = \frac{1}{2}}$$

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$$الف) \quad y = \sqrt{\frac{x+1}{1-x+1}} + \sqrt{\frac{4-x}{x^2+2x+2}}$$

نشی نشی

$$\frac{-1}{-b+\frac{4}{3}} + \frac{4}{b-} \rightarrow D_f: [-1, 4) \cup (4, +\infty)$$

$$\frac{4}{b-} \rightarrow D_f: (-\infty, 4]$$

$$\rightarrow D_f: [-1, 4) \cup (4, 2]$$

$$ب) \quad y = \sqrt{[m]-2} + \sqrt{2-[m]}$$

$$\begin{cases} [m]-2 \geq 0 \rightarrow [m] \geq 2 \rightarrow D_f: [2, +\infty) \\ 2-[m] \geq 0 \rightarrow [m] \leq 2 \rightarrow D_f: (-\infty, 2) \end{cases} \rightarrow D_f = \emptyset$$

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$$a) y = \sqrt{\frac{n^2 - n - 4}{n^2 - 13n^2 + 44}} \rightarrow (n-4)(n+1) \Rightarrow n=4, n=-1$$

$$\rightarrow (n^2 - 2)(n^2 - 9) = (n+2)(n-2)(n+3)(n-3) \Rightarrow n=-2, n=2, n=-3, n=3$$

$$\frac{-2}{+} \frac{-2}{-} \frac{2}{-} \frac{3}{+} \rightarrow D_f = (-\infty, -2) \cup (2, 3) \cup (3, +\infty)$$

ب) (مستقيم)

$$a) y = \sqrt{[n]-2} \rightarrow [n]-2 \geq 0 \rightarrow [n] \geq 2 \Rightarrow D_f = (-\infty, -2]$$

$$b) y = \frac{an^2 + 4}{[n]-2[n]-2} \rightarrow \frac{-1}{+} \frac{0}{0} \frac{2}{+}$$

$$([n]-2)([n]+1)$$

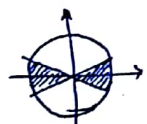
$$[2, 2) \leftarrow \rightarrow [-1, 0)$$

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

$$a) y = \frac{\cot n + 1}{\tan n + 1} \rightarrow \cot n = \frac{\cos n}{\sin n} \Rightarrow \sin n \neq 0 \quad \tan n = \frac{\sin n}{\cos n} \Rightarrow \cos n \neq 0$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\}$$

$$b) y = \sqrt{1 - 5\sin^2 n} \rightarrow 1 - 5\sin^2 n \geq 0 \rightarrow 1 \geq 5\sin^2 n \rightarrow \frac{1}{5} \geq \sin^2 n \Rightarrow \frac{1}{\sqrt{5}} \geq |\sin n|$$



$$D_f = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$$

$$a) y = \sqrt{1 - \log_{\frac{1}{2}} n} \rightarrow 1 - \log_{\frac{1}{2}} n \geq 0 \rightarrow \log_{\frac{1}{2}} n \leq 1 \rightarrow n-1 \geq (\frac{1}{2})^1 \rightarrow n \geq \frac{3}{2} \Rightarrow [\frac{3}{2}, +\infty) \text{ ①}$$

$$n-1 \geq 0 \rightarrow n \geq 1 \Rightarrow (1, +\infty) \text{ ②}$$

$$\text{①} \cap \text{②} = D_f = [\frac{3}{2}, +\infty)$$

$$b) y = \frac{\sqrt{n^2 - n}}{1 - \log_{\frac{1}{2}} n - \log_{\frac{1}{2}} n}$$

$$\text{① } n^2 - n \geq 0 \rightarrow n(n-1) \geq 0 \rightarrow \frac{+}{+} \frac{-}{-} \frac{+}{+}$$

$$\text{② } n^2 - 4n \geq 0 \rightarrow n(n-4) \geq 0 \rightarrow \frac{+}{+} \frac{-}{-} \frac{+}{+}$$

$$D_f = (-\infty, -1) \cup (-1, 0) \cup (2, 2) \cup (2, +\infty)$$

$$\text{③ } 1 - \log_{\frac{1}{2}} n - \log_{\frac{1}{2}} n \neq 0 \rightarrow \log_{\frac{1}{2}} n \neq 1 \rightarrow n - 2n \neq 2 \rightarrow n^2 - 2n - 2 = (n-2)(n+1) \Rightarrow n \neq -1, 2$$

$$a) y = \sqrt{\frac{f_m - n^2}{-1}} \rightarrow \frac{f_m - n^2}{-1} \geq 0 \rightarrow \frac{f_m - n^2}{-1} \geq 0 \rightarrow \frac{f_m - n^2}{-1} \geq 0 \Rightarrow (n-2)(n-1) \geq 0 \rightarrow \frac{+}{+} \frac{-}{-} \frac{+}{+} \rightarrow D_f = [1, 2]$$

$$b) y = \left(\frac{r_n + \omega}{r_n + \varepsilon} \right)! \rightarrow \frac{r_n + \omega}{r_n + \varepsilon} \in \mathbb{W} \rightarrow r_n + \omega = r_n w + \varepsilon w \rightarrow r_n - r_n w = -\omega + \varepsilon w$$

$$n = \frac{-\omega + \varepsilon w}{r_n - r_n w}$$

$$\Rightarrow \{n \mid n = \frac{-rk + \omega}{rk - r}, k \in \mathbb{W}\}$$

$$y = \sqrt{\frac{x^3 - 2x^2 - 5x + 4}{x^3 + 2x^2 - 5x - 4}}$$

$\xrightarrow{\text{جميع ضروباً مشتركين}} x-1$ (تقسيم بـ $x-1$)
 $\xrightarrow{\text{جميع ضروباً مشتركين}} x+1$ (تقسيم بـ $x+1$)

$$\begin{array}{r} x^3 + 2x^2 - 5x - 4 \quad | \quad x+1 \\ \underline{x^3 + x^2} \\ x^2 - 5x - 4 \\ \underline{x^2 + x} \\ -4x - 4 \\ \underline{-4x - 4} \\ 0 \end{array}$$

$\downarrow (x+3)(x-2)$

سؤال ٢ قسمت ب)

$$\begin{array}{r} x^3 - 2x^2 - 5x + 4 \quad | \quad x-1 \\ \underline{x^3 - x^2} \\ -x^2 - 5x + 4 \\ \underline{-x^2 + x} \\ -4x + 4 \\ \underline{-4x + 4} \\ 0 \end{array}$$

$\downarrow (x+2)(x-3)$

$$+ \frac{-3}{0} - \frac{-2}{0} + \frac{-1}{0} - \frac{1}{0} + \frac{2}{0} - \frac{3}{0} +$$

$$D_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$