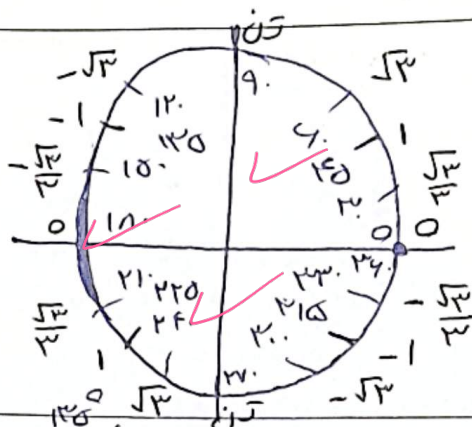




۱۹ آفرین
صفحه آخر حتماً مطالعه شود!

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الف) $\sin \frac{\pi}{4} + \cos \frac{\pi}{2} + \tan \frac{\pi}{4} = \frac{1}{\sqrt{2}} + 0 + 1 = 1 + \frac{1}{\sqrt{2}}$

ب) $-\cos \frac{\pi}{4} + \sin \frac{\pi}{2} = -\frac{\sqrt{2}}{2} + 1 = 1 - \frac{\sqrt{2}}{2}$

ج) $\cot \frac{\pi}{3} + \tan \frac{\pi}{6} = \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{3}} = \frac{2}{\sqrt{3}}$

د) $\cos(\sin \frac{\pi}{2}) + \sin(\pi \cos \frac{\pi}{2}) = \cos(1) + \sin(0) = \cos(1)$

صفحه آخر حتماً مطالعه شود راه حل ها را نوشته ام!

$f(x) = \begin{cases} x^2 + 4x & x \geq a \\ 2x + a + 2 & x \leq a \end{cases} \rightarrow f(1) = 1 \quad a > 1$

$f(1) = (1^2) + 4(1) = 5$

$x^2 + 4x = 2x + a + 2$ if $x = a$

$a^2 + 4a = 2a + a + 2 \Rightarrow a^2 + 2a - 2 = 0$
 $(a+2)(a-1) = 0$
 $a = -2$ or $a = 1$

$f(x) = \begin{cases} 2x^2 - b & |x+1| \geq 2 \\ a+2x & -2 \leq x \leq 1 \end{cases}$

$a+b=1$
 $|x+1| \geq 2 \Rightarrow x \geq 1 \text{ or } x \leq -3$
 $-2 \leq x \leq 1$

$D \cap D_f = \emptyset$
 $2x^2 - b = a + 2x$
 $-3 \leq x \leq 1$

$1a - b = a - 9$
 $2x^2 = a + b$

الف) $y = \frac{1}{x^3 - 4x^2}$
 $x^3 - 4x^2 \neq 0$
 $x^2(x-4) \neq 0$
 $x \neq 0$ and $x \neq 4$

ب) $y = \frac{1}{2x^3 + 4x^2 + 2x + 4}$

$2x^3 + 4x^2 + 2x + 4 \neq 0$
 $2x^2 + 4x + 2 \neq 0$
 $2(x^2 + 2x + 1) \neq 0$
 $2(x+1)^2 \neq 0$
 $x \neq -1$

$\Rightarrow x \neq -1$

الف) $y = \sqrt{x^2-1} + \sqrt{x-2}$ $x^2-1 \geq 0 \Rightarrow x \geq 1$ $x \leq -1$ ① $D_1 \cap D_2 = [2, +\infty)$
 $x \geq 2$ ② $= D_f$

ب) $y = \frac{\sqrt{4-x}}{\sqrt{4x-2}}$ $4-x \geq 0 \Rightarrow x \leq 4$ $4x-2 \geq 0 \Rightarrow x \geq \frac{1}{2}$ $\frac{1}{2} \leq x \leq 4$ $D_f = [\frac{1}{2}, 4]$
 مخرج نباید صفر بود!

$y = \sqrt{4x-a} + \sqrt{b-3x}$
 $4x \geq a \Rightarrow x \geq \frac{a}{4}$ $b \geq 3x \Rightarrow x \leq \frac{b}{3}$
 $[\frac{a}{4}, +\infty) \cap (-\infty, \frac{b}{3}] = \{x\} \Rightarrow \frac{a}{4} = \frac{b}{3} \Rightarrow \frac{b}{a} = \frac{3}{4} \Rightarrow \frac{b}{a} = \frac{3}{4}$ ②

الف) $y = \sqrt{\frac{x^2-x-6}{x^2-13x^2+44}}$ $\rightarrow \frac{(x-3)(x+2)}{(x-4)(x+1)}$ $(-\infty, 3) \cup (4, +\infty) - \{2\}$
 $\frac{-2 \quad -1 \quad 1 \quad 3}{+ \quad - \quad + \quad -}$
 $\frac{1}{x-4} - \frac{1}{x+1}$
 ب) $y = \sqrt{\frac{x^2-13x^2+44}{x^2+2x^2-5x-4}}$ $\rightarrow \frac{(x^2-x-6)(x-1)}{(x^2+x+4)(x+1)}$ $\frac{-2 \quad -1 \quad 1 \quad 3}{+ \quad - \quad + \quad -}$
 $\frac{1}{x-4} - \frac{1}{x+1}$
 $(-\infty, -2] \cup (-1, 1] \cup [3, +\infty)$

الف) $y = \sqrt{2[x]-4} \rightarrow [x] \geq 2 \Rightarrow x \geq 2$ $[2, +\infty)$
 $2[x]-4 \geq 0 \Rightarrow [x] \geq 2$

ب) $y = \sqrt{2[x]-5}$ $[2, +\infty)$
 $2[x]-5 \geq 0 \Rightarrow [x] \geq \frac{5}{2} \Rightarrow [x] \geq 3 \Rightarrow x \geq 3$

الف) $y = \sqrt{\frac{1}{|x-1|}} + \sqrt{\frac{4-x}{x^2+2x+4}}$ $x < 1$ $\frac{-1 \quad 3}{- \quad +}$ $[-1, 4] - \{1\}$
 $x \geq -1$ $- \{1\}$

ب) $y = \sqrt{[x]-4} + \sqrt{2-[x]}$ $[x]-4 \geq 0 \Rightarrow [x] \geq 4 \Rightarrow x \geq 4$ $D_f = \emptyset$
 $[x] \leq 2 \Rightarrow x < 3$

$$\text{ب-۲)} -C \cdot \frac{\Delta n}{4} + \sin \frac{2n}{3} - 3 \sin \frac{4n}{3} = -(-\sqrt{\frac{3}{4}}) + \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2}) = \frac{5\sqrt{3}}{2}$$

$$\text{ج-۲)} C \cdot t \frac{2n}{3} + 3C \cdot t \frac{4n}{3} - 2 \tan \frac{\Delta n}{4} = -\sqrt{\frac{3}{4}} + 3(\frac{\sqrt{3}}{2}) - 2(-\frac{\sqrt{3}}{2}) = \frac{4\sqrt{3}}{2}$$

ب-۴) $y = \frac{\sqrt{4-3n}}{\sqrt{4n-3}}$ عبارت زیر را سوال باید نامنظم و عبارت صفر مختلف صفر باشد...

$$4-3n \geq 0 \rightarrow n \leq \frac{4}{3}$$

$$4n-3 > 0 \rightarrow n > \frac{3}{4} \xrightarrow{\wedge} \frac{3}{4} < n \leq \frac{4}{3} \rightarrow D_f = (\frac{3}{4}, \frac{4}{3}]$$

الف-۸) $y = \sqrt{\frac{n^2-n-4}{n^4-13n^2+34}} \rightarrow \frac{n^2-n-4}{n^4-13n^2+34} \geq 0 \rightarrow \frac{(n-3)(n+2)}{(n^2-9)(n^2-4)} \geq 0$

$$\frac{(n-3)(n+2)}{(n-3)(n+3)(n-2)(n+2)} \geq 0 \rightarrow \frac{-3}{+} \frac{-2}{-} \frac{2}{-} \frac{3}{+}$$

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