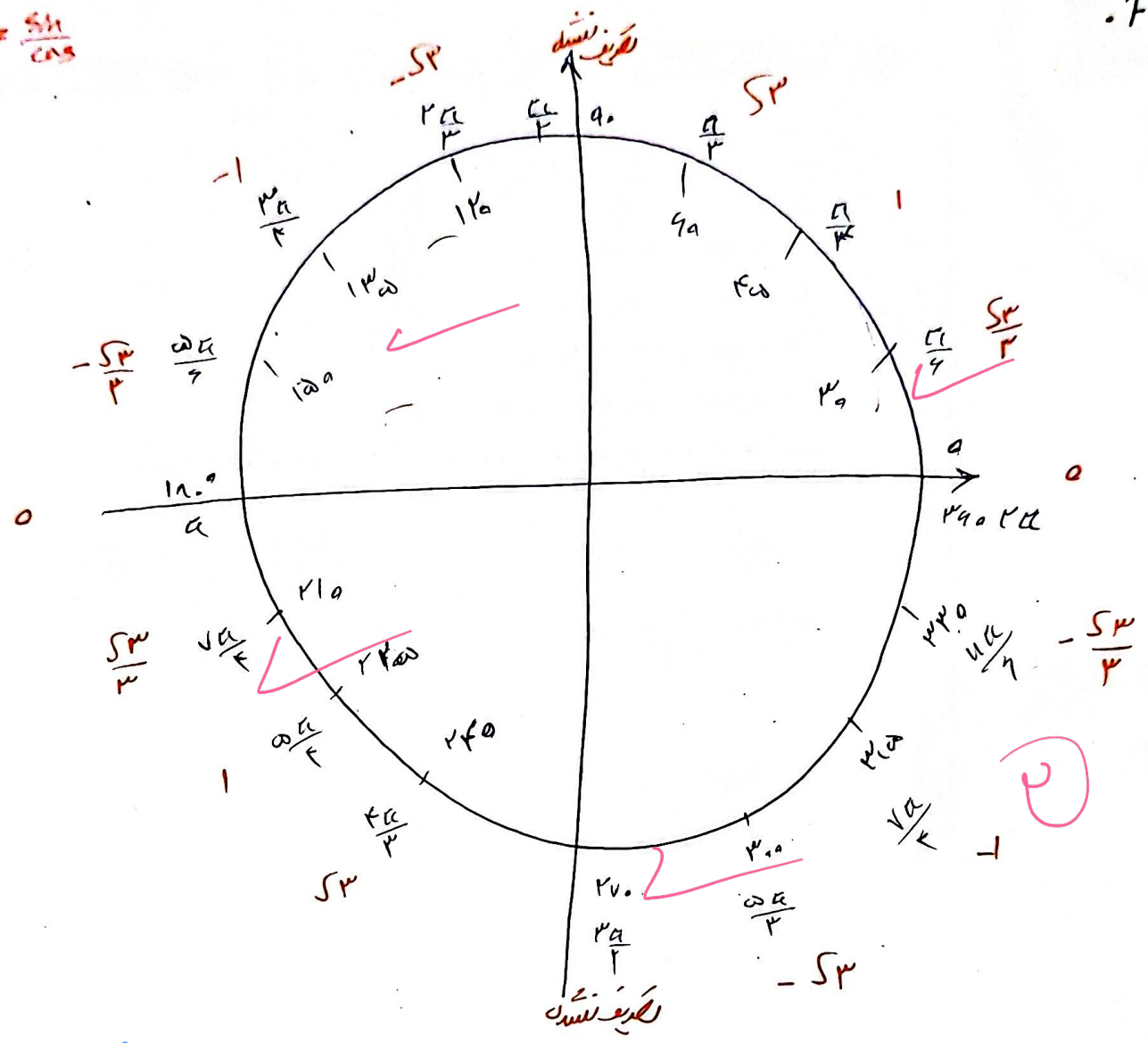


آشپزخانه

۱۸/۷۵ دقت کن دفتر!

1

$\cos = \frac{\sin}{\cos}$



پایه های درست حقیقی آخر نوشته شده است

1/3 - 1/3 + 2(-1) = (5/3 - 3) - 1/3

$\sin \frac{\pi}{6} = \frac{1}{2}$

ج) $-\frac{5}{3} + 2(\frac{5}{3}) - 2(-\frac{5}{3})$

$\frac{2 \cdot 5}{3} + \frac{2 \cdot 5}{3} \Rightarrow \frac{4 \cdot 5}{3}$

$\sin \frac{\pi}{6} = \frac{\sqrt{3}}{2}$

1.20.2

ب) $= +\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2})$

دقت کن !!! $\frac{2 \cdot \sqrt{3}}{2} - \frac{3 \cdot \sqrt{3}}{2} = (-\frac{\sqrt{3}}{2})$

$\cos(\sin \frac{\pi}{6}) + \sin(\cos \frac{\pi}{6}) = 2$

$$f(x) = \begin{cases} x^2 + 7x & x \geq a \\ 2x + a + 2 & x < a \end{cases}$$

$$a^2 + 7a = 2a + 2$$

$$f(1) = 1 + 7 = 8$$

$$a^2 + a - 2 = 0$$

$$(a+2)(a-1) = 0$$

$$\Rightarrow a = -2 \text{ or } a = 1 \Rightarrow a = 1$$

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

$$x+1 \geq 2 \text{ or } x+1 \leq -2 \Rightarrow x \geq 1 \text{ or } x \leq -3$$

ضرایب اول برای بازه های $(-3, -1]$ و $(1, +\infty)$ تعریف شد
 ضرایب دوم برای بازه $[-3, -1]$ تعریف شد

$$2(-3)^2 - b = a + 2(-3)$$

$$18 - b = a - 6$$

$$a + b = 18 + 6 = 24$$

$$y = \frac{1}{x^3 - 7x^2}$$

$$x^3 - 7x^2 \neq 0$$

$$x^2(x-7) \neq 0$$

$$x \neq 0 \text{ or } x \neq 7$$

$$D_f = \mathbb{R} - \{0, 7\}$$

$$y = \frac{1}{2x^3 + 7x^2 + 2x + 7}$$

$$D_f = \mathbb{R} - \{-2, -7\}$$

$$2(-1)^3 + 7(-1)^2 + 2(-1) + 7 = 0$$

$$2x^3 + 7x^2 + 2x + 7 = 2x^2(x+2) + 7(x+2) = 0$$

الف) $\sqrt{x^2-1} + \sqrt{x-2}$ $D_f = (1, +\infty)$

$x^2-1 \geq 0 \rightarrow x \geq 1$
 $x \leq -1$

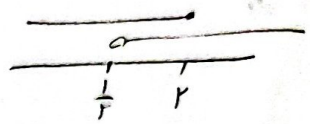


$x-2 \geq 0 \rightarrow x \geq 2$

2

ب) $\frac{\sqrt{4-3x}}{\sqrt{9x-2}}$

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



$9x-2 \geq 0 \rightarrow x \geq \frac{2}{9}$

$D_f = (\frac{2}{9}, \frac{4}{3}]$

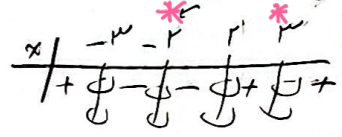
$y = \sqrt{4x-a} + \sqrt{b-3x} \Rightarrow D_f = \{x\} \Rightarrow \frac{b}{a} = ?$

$4x-a \geq 0 \rightarrow x \geq \frac{a}{4}$
 $b-3x \geq 0 \rightarrow x \leq \frac{b}{3}$

$\frac{a}{4} = \frac{b}{3} = 2 \rightarrow a=8 \rightarrow b=12$

$[\frac{a}{4}, +\infty) \cap (-\infty, \frac{b}{3}] = [2, 2]$

الف) $y = \sqrt{\frac{x^2-x-6}{x^2-13x+44}}$



$x^2-13x+44 \geq 0 \Rightarrow (x-4)(x-11) \geq 0 \Rightarrow x \leq 4$ or $x \geq 11$

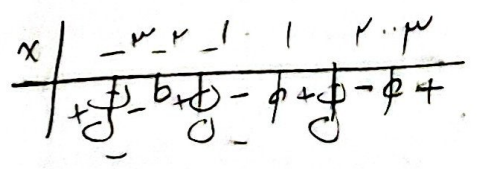
ب) $y = \sqrt{\frac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}}$ $D_f = (-\infty, -3) \cup (1, 3) \cup (3, +\infty)$

جمع ضرایب توان مساوی در فرجه باید صفر است پس به
 1- x بخشید

$$\begin{array}{r} x^3+2x^2-5x-6 : x+1 \\ \underline{-(x^3+x^2-4x-6)} \\ x^2-4x \\ \underline{-(x^2+x-6)} \\ -5x+6 \end{array}$$

$$\begin{array}{r} x^3-2x^2-5x+6 : x-1 \\ \underline{-(x^3-x^2-4x+6)} \\ -x^2-4x \\ \underline{-(x^2-x-6)} \\ -5x+6 \end{array}$$

ب) $y = \sqrt{\frac{(x-1)(x-3)(x+2)}{(x+1)(x-2)(x+3)}}$



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

الف) $y = \sqrt{2(x) - 4}$

$2(x) - 4 \geq 0 \rightarrow 2(x) \geq 4 \rightarrow x \geq 2 \rightarrow [2, +\infty)$

$D_f = [2, +\infty)$

ب) $y = \sqrt{2(x) - 4}$

$2(x) - 4 \geq 0 \rightarrow 2(x) \geq 4 \rightarrow x \geq 2 \rightarrow [2, +\infty)$

$D_f = [2, +\infty)$

$x \geq 2$

$n+1 \geq 0 \rightarrow |n-4| \neq 0$

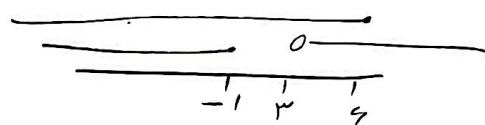
الف) $y = \sqrt{\frac{n+1}{|n-4|}} + \sqrt{\frac{4-n}{n^2+2n+2}}$

همواره نامشخص چنانچه علامت نبوی است

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

$4-x \geq 0 \rightarrow x \leq 4 \rightarrow D_f = (-\infty, 4]$

$\Delta = 4 - 4(1)(2) = -4 < 0$



$D_f' = (-\infty, -1] \cup (3, 4]$

ب) $y = \sqrt{(x)-4} + \sqrt{2-(x)}$

$(x)-4 \geq 0 \rightarrow x \geq 4 \rightarrow D_f = [4, +\infty)$

$2-(x) \geq 0 \rightarrow 2 \geq x \rightarrow D_f = (-\infty, 2]$

$D_f' = \emptyset$

اشتراک نیست



الف-۱۰) $y = \sqrt{\frac{n+1}{|n-4|}} + \sqrt{\frac{4-n}{n^2+2n+2}}$

به نفعاً مقدریت مفرج!

$\frac{n+1}{|n-4|} \geq 0 \rightarrow n \geq -1, n \neq 4$ I

$\frac{4-n}{n^2+2n+2} \geq 0 \rightarrow n \leq 4$ II

همواره مثبت و بدون مقدریت

$I \cap II \rightarrow D_f = [-1, 4] \setminus \{4\}$

$$\text{الف - ٢) } \sin \frac{\pi}{4} + \cos \pi + 2 \sin \frac{3\pi}{4} = \frac{1}{\sqrt{2}} + (-1) + 2(-1) = -\frac{5}{\sqrt{2}} < -2,5$$

$$\text{ب - ٢) } -\cos \frac{5\pi}{4} + \sin \frac{3\pi}{4} - 3 \sin \frac{\pi}{4} = -(-\frac{\sqrt{2}}{2}) + \frac{\sqrt{2}}{2} - 3(\frac{\sqrt{2}}{2}) = \frac{5\sqrt{2}}{2}$$