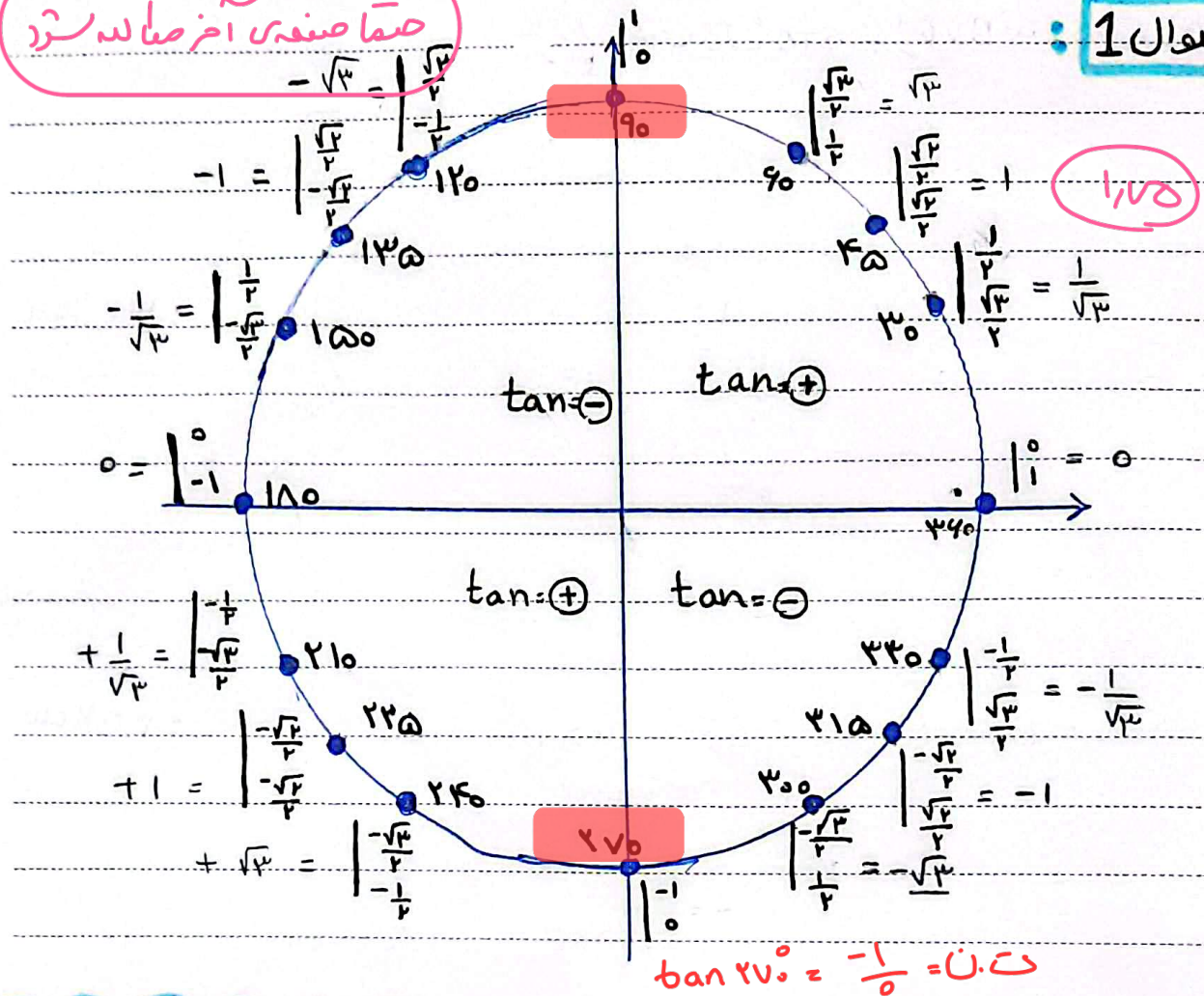


$\tan 90^\circ = \frac{1}{0} = \text{ن.ت}$

حقاً صندلی آخر صاف است

سوال 1:



$\tan 270^\circ = \frac{-1}{0} = \text{ن.ت}$

سوال 2:

الف) $\sin \frac{\pi}{9} + \cos \frac{\pi}{9} + 2 \tan \frac{3\pi}{9} = \frac{1}{2} + (-1) + 2 \times \left(-\frac{\sqrt{3}}{2} \right) = \frac{1}{2} - 1 - \sqrt{3} = -\frac{1}{2} - \sqrt{3}$

ب) $-\cos \frac{5\pi}{9} + \sin \frac{4\pi}{9} - 3 \sin \frac{5\pi}{9} = -\left(-\frac{\sqrt{3}}{2} \right) + \frac{\sqrt{3}}{2} - \left(3 \times \frac{\sqrt{3}}{2} \right) = \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - \frac{3\sqrt{3}}{2} = -\frac{\sqrt{3}}{2}$

ج) $\cot \frac{2\pi}{9} + 3 \cot \frac{4\pi}{9} - 2 \tan \frac{5\pi}{9} = -\frac{1}{\sqrt{3}} + \left(3 \times \frac{1}{\sqrt{3}} \right) - \left(2 \times -\frac{1}{\sqrt{3}} \right) = -\frac{1}{\sqrt{3}} + \frac{3}{\sqrt{3}} + \frac{2}{\sqrt{3}} = \frac{4}{\sqrt{3}}$

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حورا کبری زاده

$$\Rightarrow \cos(\sin \frac{\pi}{4}) + \sin(\pi \cos \frac{\pi}{4}) = \cos 0 + \sin 0 = 2$$

$\sin \frac{\pi}{4} = 0$

$$a^2 + fa = 2a + a + r$$

سوال ۳:

$$a^2 + fa = 3a + r$$

$$a^2 + a - r = 0 \rightarrow a = -2 \text{ و } a > 0$$

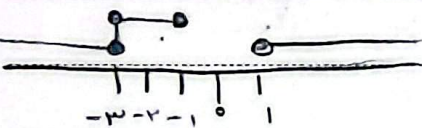
$$\rightarrow a = +1$$

$$a^2 + fa = 1 + f \rightarrow a = 1$$

$$|n+1| \geq 2 \rightarrow n+1 \geq 2 \rightarrow n \geq 1$$

$$-2 \geq n+1 \rightarrow -3 \geq n$$

سوال ۴:



$$\rightarrow n = -3 \rightarrow 2a^2 - b = a + 2n$$

$$1a - b = a - 4$$

$$a + b = 1a + 4 = 2f$$

سوال ۵:

$$f(x) = \frac{1}{x^3 - 4x^2} \rightarrow x^3 - 4x^2 \neq 0 \quad Df = \mathbb{R} - \{0, 4\}$$

$$x(x^2 - 4x) \neq 0$$

$$x \neq 0 \rightarrow x \neq 4$$

$$f(x) = \frac{1}{2x^3 + 5x^2 + 2x + 1} \rightarrow 2x^3 + 5x^2 + 2x + 1 \neq 0$$

$$x^3 + 2x^2 + x + 1 \neq 0$$

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

$$x^2(x + 2) + 1(x + 1) \neq 0 \rightarrow (x + 2)(x^2 + 1) \neq 0 \quad Df = \mathbb{R} - \{-2\}$$

TOPCO

$$0 = x + 2 \rightarrow x = -2$$

$$x^2 + 1 = 0 \rightarrow x^2 = -1$$

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حواکبه ای / اد

سوال ۹) الف) $y = \sqrt{2[n]-4}$ $2[n]-4 \geq 0 \Rightarrow 2[n] \geq 4$

$[n] \geq 2 \sim Df = [2, +\infty)$

ب) $y = \sqrt{2[n]-9}$ $2[n]-9 \geq 0 \Rightarrow 2[n] \geq 9 \sim [n] \geq \frac{9}{2}$

$Df = [4.5, +\infty)$

سوال ۱۰) الف) $\frac{n+1}{n-3} \geq 0 \Rightarrow \frac{n+1}{n-3} \geq 0 \sim n+1 \geq 0 \sim n \geq -1$
 $\frac{n+1}{n-3} \geq 0 \sim n-3 > 0 \rightarrow n > 3$
 $\sim (-1, 3) \cup (3, +\infty)$

$\frac{4-n}{n^2+2n+4} \geq 0 \sim 4-n \geq 0 \sim n \leq 4$
 $n^2+2n+4 = (n+1)^2+3 > 0 \sim (-\infty, 4]$

$Df = (-1, 3) \cup (3, 4]$

ب) $\sqrt{[n]-4} + \sqrt{2-[n]}$
 $\sqrt{[n]-4} \geq 0 \Rightarrow [n] \geq 4$
 $\sqrt{2-[n]} \geq 0 \Rightarrow 2-[n] \geq 0 \Rightarrow [n] \leq 2$
 $Df = \emptyset$

$[n] \geq 4 \sim [4, +\infty)$

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عبدالله بن محمد

سوال 4) الف) $x^2 - 1 \geq 0 \Rightarrow \frac{-1}{+1} \leq \frac{1}{-1} \Rightarrow (-\infty, -1] \cup [1, +\infty)$

$x - 2 \geq 0 \Rightarrow \frac{2}{-1} \leq \frac{1}{-1} \Rightarrow [2, +\infty)$ $Df = [2, +\infty)$

ب) $4 - 3x \geq 0 \Rightarrow (-\infty, \frac{4}{3}]$

$\frac{4}{3}$
+ 1 -

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

$4x - 3 > 0$

$\frac{3}{4}$
- 1 +

$\Rightarrow (\frac{3}{4}, +\infty)$

$4x - a \geq 0 \Rightarrow 4x \geq a \Rightarrow x \geq \frac{a}{4}$

$\frac{a}{4}$
+ 1 -

$b - 3x \geq 3 \Rightarrow 3x \leq b \Rightarrow x \leq \frac{b}{3}$

$Df = \{x\}$

$(\frac{b}{3} = \frac{a}{4}) \Rightarrow b = \frac{a}{4} \Rightarrow 4b = a$

$Df = [\frac{a}{4}, \frac{b}{3}] \Rightarrow \frac{a}{4} = \frac{b}{3} = 2 \Rightarrow a = 8, b = 6$

سوال 5)

$\frac{b}{a} = \frac{1}{4}$

سوال 6)

الف) $\frac{(x-3)(x+2)}{(x-1)(x-4)} \geq 0 \Rightarrow \frac{-2 \quad 3 \quad 4 \quad 1}{+1 -1 +1 -1}$

$Df = (-\infty, -2] \cup [3, 4) \cup (1, +\infty)$

الحل صنفی آخر نوشته شد

ب) $\frac{(x-1)(x-4)(x-3)}{-(x+1)(x+2)(x+3)} \Rightarrow \frac{-3 \quad -2 \quad -1 \quad 1 \quad 2 \quad 3}{-1 +1 -1 +1 -1 +1}$

$Df = (-3, -2) \cup (-1, 1] \cup [2, 3)$

TOPCO

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

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

	-3	-2	2	3
	+	-	-	+

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

ب) $y = \sqrt{\frac{n^3 - 2n^2 - 5n + 4}{n^3 + 2n^2 - 5n - 4}} \gtrsim \frac{n^3 - 2n^2 - 5n + 4}{n^3 + 2n^2 - 5n - 4} \gtrsim 0 \gtrsim$

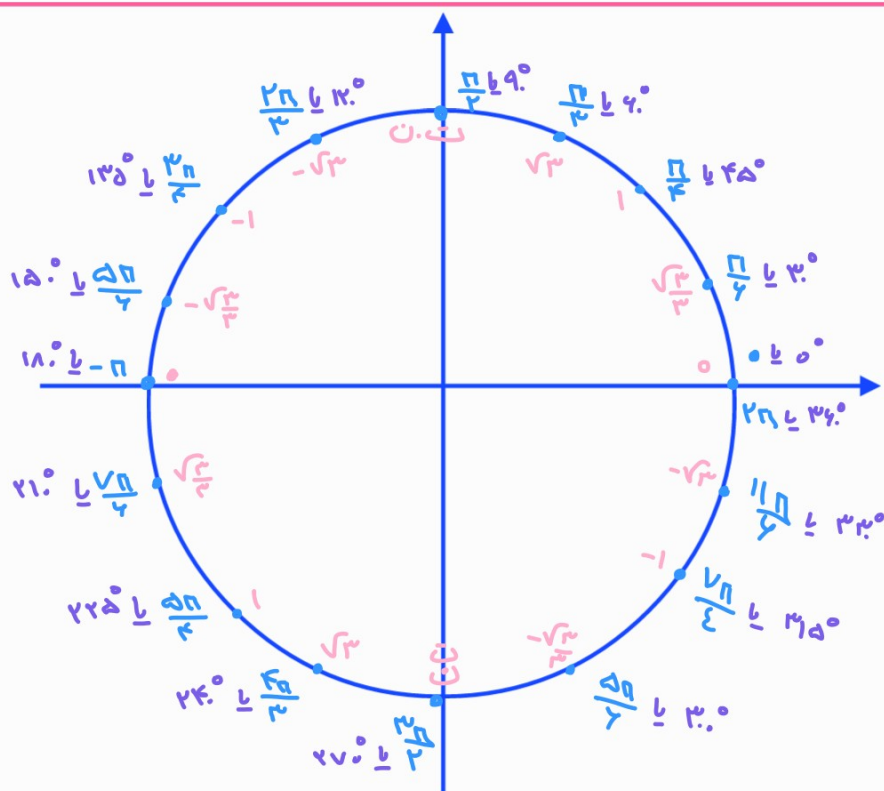
مخبرایب صفر نقش پذیر بر (n-1)

مخبرایب بدان زوج و فرد برابر نقش پذیر بر (n+1)

$\frac{(n-1)(n^2 - n - 4)}{(n+1)(n^2 + n - 4)} \gtrsim 0 \gtrsim \frac{(n-1)(n-3)(n+2)}{(n+1)(n+3)(n-2)} \gtrsim$

	-3	-2	-1	1	2	3
	+	-	+	-	+	-

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



$\tan \leftarrow \blacksquare$
 زاویه به حسب رادیان $\leftarrow \blacksquare$
 زاویه به حسب درجه $\leftarrow \blacksquare$

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