

$$\tan 90^\circ = \frac{1}{0} = \text{تنگ}$$

$$\tan 360^\circ = \frac{0}{1} = 0$$

سارا اضافی ۱۸، ۵

$$\tan 180^\circ = 0$$

DATE:

SUBJECT:

NOTE:

$$\tan 120^\circ = -\sqrt{3}$$

$$\tan 40^\circ = \sqrt{3}$$

(1)

$$\tan 45^\circ = \tan 45^\circ = 1$$

$$\tan 30^\circ = \frac{\sqrt{3}}{3}$$

(۱، ۵)

دایره منتهای را

$$\tan 135^\circ = -1$$

در صفحه آخر

$$\tan 150^\circ = -\frac{\sqrt{3}}{3}$$

برای

کنیم

$$\tan 180^\circ = 0$$

$$\tan 135^\circ = -1$$

$$\tan 135^\circ = -\frac{\sqrt{3}}{3}$$

$$\tan 150^\circ = -1$$

$$\tan 120^\circ = \sqrt{3}$$

$$\tan 135^\circ = 1$$

$$\tan 150^\circ = \sqrt{3}$$

$$\tan 180^\circ = -\sqrt{3}$$

الف - $\sin 30^\circ + \cos 120^\circ + 2 \tan 135^\circ = \frac{1}{2} - 1 - 2 = -\frac{4}{2} + \frac{1}{2} = -\frac{3}{2}$ (۲)

ب - $-\cos 120^\circ + \sin 120^\circ - 3 \sin 150^\circ = +\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} + \frac{3\sqrt{3}}{2} - \frac{\sqrt{3}}{2} = \frac{4\sqrt{3}}{2} = 2\sqrt{3}$

ج - $\cot 120^\circ + 3 \cot 150^\circ - 2 \tan 120^\circ = -\sqrt{3} + 3\sqrt{3} - 2\sqrt{3} = \sqrt{3}$

$$\frac{2\sqrt{3}}{3} - \frac{2\sqrt{3}}{3} = \frac{4\sqrt{3} - 2\sqrt{3}}{3} = \frac{2\sqrt{3}}{3}$$

د) $\cos\left(\frac{\sin 120^\circ}{1}\right) + \sin\left(\frac{\pi}{2}\right) = 1 + 1 = 2$
 $\cos 40^\circ = \frac{1}{2}$

$$a^2 + fa = 2a + a + 2 \quad a^2 + fa = 3a + 2$$

(۳)

$$a^2 + a - 2 = 0 \quad (a+2)(a-1) = 0 \quad a = -2 \vee 1$$

$$f(1) = 1 + f = 2$$

(۲)

$$|x+1| \geq 2 \quad x+1 \geq 2 \quad x \geq 1 \quad x+1 \leq -2 \quad x \leq -3$$

(۴)

$$x \in (-\infty, -3] \cup [1, +\infty)$$

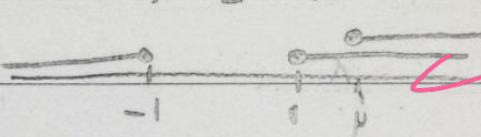
Ruzzle

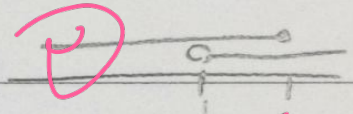
$$11 - 5 = a - 4$$

$$a + b = 24$$

(الف) - $x^4 - 4x^2 \neq 0$ $x^2(x-2) \neq 0$ $x \neq 0, 2$ (-5)
 $D = R - \{0, 2\}$ D

(ب) $4x^4 + 4x^2 + 1 \neq 0$ $4x(x^2+1) + 1 \neq 0$
 $(4x+1)(x^2+1) \neq 0$ $x \neq -\frac{1}{4}$ $D = R - \{-\frac{1}{4}\}$
+ ملاحظه

(الف) - $x^2 - 1 \geq 0$ $x^2 \geq 1$ $x \geq 1 \vee x \leq -1$ 4
 $x - 1 \geq 0$ $x \geq 1$  D = [1, +\infty)

(ب) $4 - 3x \geq 0$ $3x \leq 4$ $x \leq \frac{4}{3}$ D 
 $4x - 3 \geq 0$ $4x \geq 3$ $x \geq \frac{3}{4}$ D = [\frac{3}{4}, \frac{4}{3}]

$4x - a \geq 0$ $x \geq \frac{a}{4}$ $b - 3x \geq 0$ $x \leq \frac{b}{3}$ -1
 $\frac{b}{3} = \frac{a}{4}$ $a = \frac{4}{3}b$ D $b = 1$ $a = \frac{4}{3}$ $\frac{b}{a} = \frac{1}{\frac{4}{3}} = \frac{3}{4}$

$\frac{x^2 - x - 4}{x^2 - 13x^2 + 12} \geq 0$ $\frac{(x-3)(x+2)}{(x^2-4)(x^2-9)} \geq 0$ $\frac{(x-3)(x+2)}{(x+2)(x-2)(x+3)(x-3)} \geq 0$ -1

x | -3 -2 2 3
 P | $+$ $-$ $-$ $+$ $+$ D $\rightarrow (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$

ب - $\frac{x^3 - 2x^2 - 2x + 4}{x^3 + 2x^2 - 2x - 4} \geq 0$ - 1

$x^3 - 2x^2 - 2x + 4 \rightarrow$ ~~مضروب~~
 $(x+1)(x-3)(x+2)$

$\frac{x^3 - 2x^2 - 2x + 4}{x^3 + 2x^2 - 2x - 4} \div \frac{x-1}{x^2 - x - 4}$
 $\frac{-x^3 + 2x^2}{x^3 + 2x^2 - 2x - 4}$
 $\frac{-x^3 - 2x^2 + 4}{x^3 + 2x^2 - 2x - 4}$
 $\frac{-4x + 4}{x^3 + 2x^2 - 2x - 4}$

$x^3 + 2x^2 - 2x - 4 \rightarrow$ ~~مضروب~~ ~~نوع~~ = ~~مضروب~~
 $(x+1)(x+3)(x-2)$

$\frac{x^3 + 2x^2 - 2x - 4}{x^3 + 2x^2 - 2x - 4} \div \frac{x+1}{x^2 + x - 4}$
 $\frac{-x^3 - 2x^2}{x^3 + 2x^2 - 2x - 4}$
 $\frac{-x^3 - 2x^2 + 4}{x^3 + 2x^2 - 2x - 4}$
 $\frac{-4x - 4}{x^3 + 2x^2 - 2x - 4}$

$\frac{(x+1)(x-3)(x+2)}{(x+1)(x+3)(x-2)} \geq 0$

x	-3	-2	-1	2	3
p	+	-	+	+	-

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

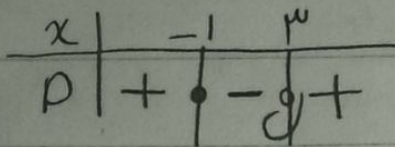
الف - $2[x] - 4 \geq 0 \quad [x] \geq 2 \quad [2, +\infty)$ - 9

ب - $2[x] - 5 \geq 0 \quad [x] \geq 2.5 \quad x \geq 2.5 \rightarrow [3, +\infty)$

$x \neq 3$ و $x \geq -1$

$$\frac{x+1}{|x-3|} \geq 0$$

همواره مثبت



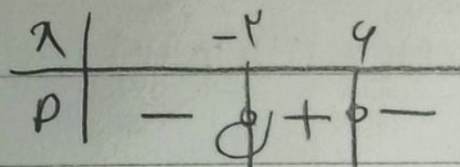
$$(-\infty, -1] \cup (3, +\infty)$$

دین نیاز به تعیین علامت نبود!

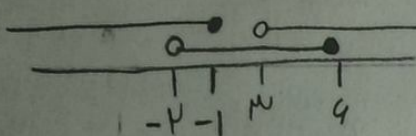
$$\frac{4-x}{x^2+2x+5}$$

$$\frac{4-x}{(x+1)^2} \geq 0$$

مربع



$$(-1, 4]$$



$$(-1, 4] \cap (3, +\infty) = (3, 4]$$

ب

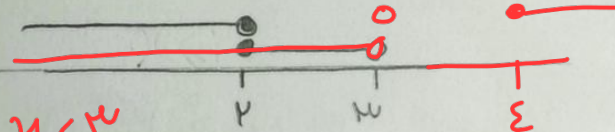
$$[x] - 4 \geq 0$$

$$[x] \geq 4$$

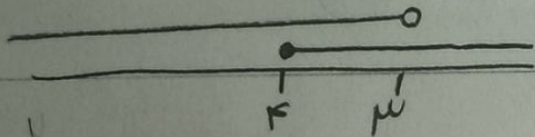
$$x \geq 4 \quad [4, +\infty)$$

$$4 - [x] \geq 0$$

$$[x] \leq 4$$

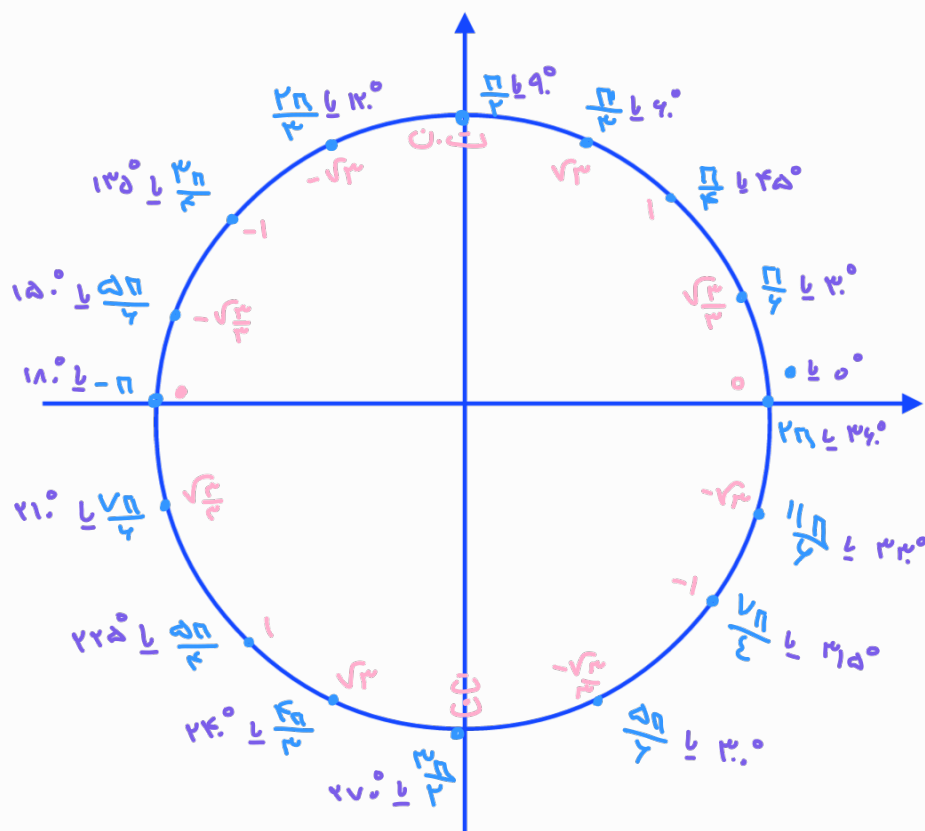


$$x < 5$$



$$[4, 5)$$

↓ حتما این صنف مطالعه شود ↓



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

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

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

فقط مقدماتی مفروضه!

$$\begin{cases} \frac{n+1}{|n-4|} \geq 0 \rightarrow n \geq -1, n \neq 4 \text{ I} \\ \frac{4-n}{n^2+2n+2} \geq 0 \rightarrow n \leq 4 \text{ II} \end{cases}$$

در Δ دواره مثبت و بدون مقدماتی

$$\xrightarrow{I \cap II} D_f = [-1, 4) \cup (4, 4] \subseteq [-1, 4] - \{4\}$$

(۱۰-ب) $y = \sqrt{[n]-4} + \sqrt{2-[n]}$

$$\begin{cases} [n]-4 \geq 0 \rightarrow n \geq 4 \text{ I} \\ \text{یا } [n] \geq 4 \\ 2-[n] \leq 0 \rightarrow n < 3 \text{ II} \\ \text{یا } [n] \leq 2 \end{cases}$$

همه عددی نداریم که از ۳ بزرگتر و ۳ کمتر باشد

$$\xrightarrow{I \cap II} D_f = \emptyset$$