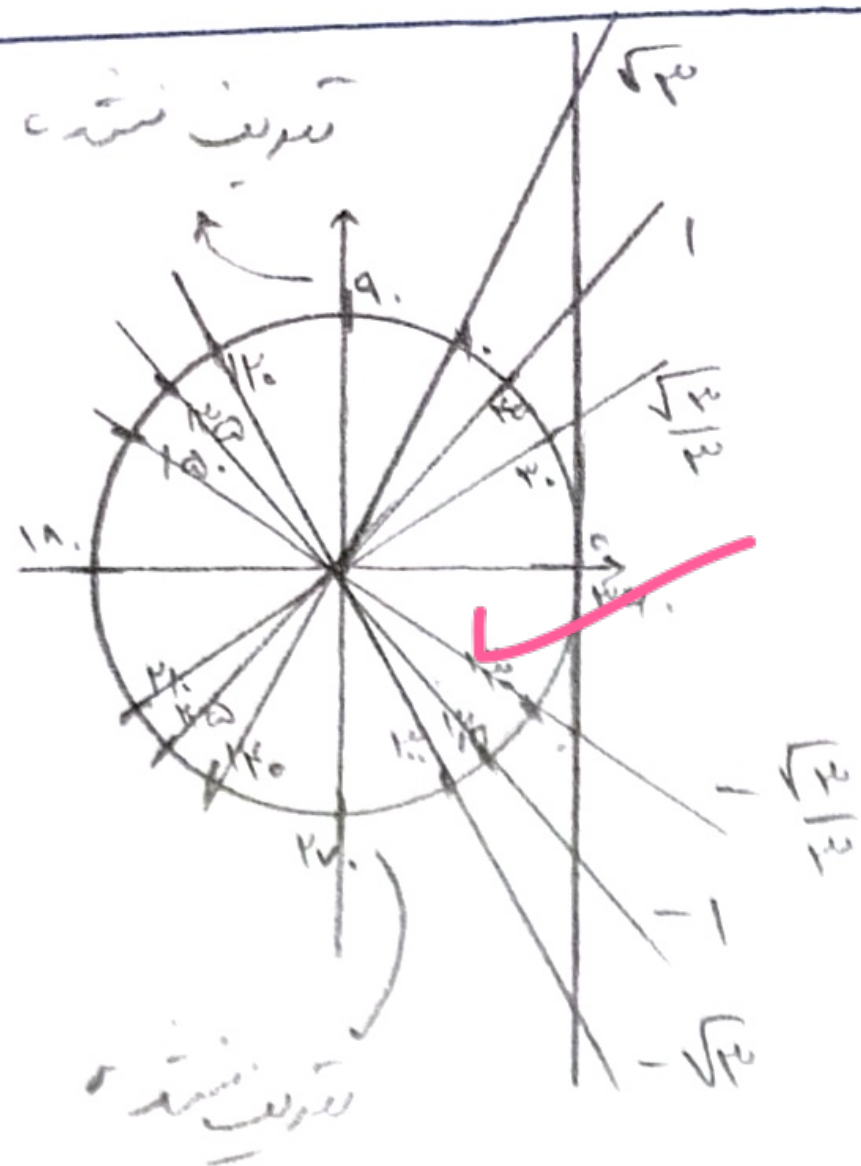




۲. آخرین گفتا به خود را بر رشت تر بنویس معنوم ازت ت

$\tan \alpha = \frac{\sin \alpha}{\cos \alpha}$
 $\tan \frac{\pi}{6} = \frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$, $\tan \frac{\pi}{4} = \frac{1}{1} = 1$, $\tan \frac{\pi}{3} = \frac{\sqrt{3}}{1} = \sqrt{3}$
 $\tan \frac{5\pi}{6} = -\frac{1}{\sqrt{3}}$, $\tan \frac{3\pi}{4} = -1$, $\tan \frac{2\pi}{3} = -\sqrt{3}$
 $\tan \frac{7\pi}{6} = \frac{1}{\sqrt{3}}$, $\tan \frac{5\pi}{4} = 1$, $\tan \frac{4\pi}{3} = \sqrt{3}$
 $\tan \frac{11\pi}{6} = -\frac{1}{\sqrt{3}}$, $\tan \frac{7\pi}{4} = -1$, $\tan \frac{5\pi}{3} = -\sqrt{3}$

الف) $\frac{1}{\sqrt{3}} + (-1) + 1(-1) = \frac{1}{\sqrt{3}} - 1 - 1 = \frac{1-4}{\sqrt{3}} = -\frac{3}{\sqrt{3}}$

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

ج) $-\frac{\sqrt{3}}{\sqrt{3}} + \frac{\sqrt{3}}{\sqrt{3}} + \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{\sqrt{3}} = 1$

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

$x^2 + x = a$
 $rx + a + r = a$
 $rx + r = 0$
 $x + 1 = 0$
 $x = -1$

$f(1) \rightarrow 1 + 1 = 2$
 $1 + r = a = f(1)$

$x > 0 \rightarrow x + 1 > 1 \rightarrow x > 0$
 $x < 0 \rightarrow x + 1 < -1 \rightarrow x < -2$
 $-2 < x < -1 \rightarrow D_f = [-2, -1]$

$r(-2)^2 - b = a + r(-2)$
 $4 - b = a - 4$
 $4 - 4 = a + b$
 $0 = a + b$

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

$D_f = \mathbb{R} - \{0, 1\}$

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

$r x^2 \neq -r$
 $x^2 \neq -1 \rightarrow \mathbb{R}$

$D_f = \mathbb{R} - \{-1\}$

ا) $x^2 - 1 \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \geq 1, x \leq -1 \} \xrightarrow{\wedge} D_f = [1, +\infty)$
 $x - 2 \geq 0 \rightarrow x \geq 2$

ب) $4 - 3x \geq 0 \rightarrow 3x \leq 4 \rightarrow x \leq \frac{4}{3}$
 $4x - 3 > 0 \rightarrow 4x > 3 \rightarrow x > \frac{3}{4}$
 $\frac{3}{4} < x \leq \frac{4}{3}$

$x = 2$
 $4(2) - a = 0 \rightarrow a = 8$
 $b - 3x = 0 \rightarrow b = 6$
 $b - 3(2) = 0 \rightarrow b = 6$
 $\frac{b}{a} = \frac{6}{8} = \frac{3}{4}$

ا) $\frac{x^2 - x - 4}{x^2 - 13x - 34} \geq 0 \rightarrow \frac{(x-4)(x+1)}{(x-13)(x+2)(x-2)(x-1)} \geq 0 \rightarrow \frac{1}{(x+13)(x-2)} \geq 0$
 $(x+13)(x-2) \leq 0 \rightarrow \frac{-13}{-13} \quad \frac{2}{2} \rightarrow x \neq -13, 2, -2, 1$
 $D_f = (-\infty, -13) \cup (2, 13) \cup (13, +\infty)$

ب) صواب : $1 - 2 - a + 4 = 0 \rightarrow x = 1$
 $(x-1)(x^2 - x - 4) = (x-1)(x-4)(x+1)$
 $1 \quad 4 \quad -1$
 كج : $1 - a = 2 - 4 \rightarrow x = -1$
 $(x+1)(x^2 + x - 4) = (x+1)(x+4)(x-1)$
 $-1 \quad -4 \quad 1$

$\frac{-13}{-13} \quad \frac{2}{2} \quad \frac{-1}{-1} \quad \frac{1}{1} \quad \frac{4}{4} \quad \frac{-1}{-1}$
 $D_f = (-\infty, -13) \cup (-2, 1) \cup [1, 2) \cup [2, +\infty)$

ا) $f(x) - 1 \geq 0 \rightarrow f(x) \geq 1 \rightarrow [x] \geq 1$
 $x \geq 2$
 $D_f = [2, +\infty)$

ب) $f(x) - a \geq 0 \rightarrow f(x) \geq a \rightarrow [x] \geq \frac{a}{f}$
 $[x] \geq \frac{1}{a}$
 $[x] \geq 3 \rightarrow x \geq 3$
 $D_f = [3, +\infty)$

ا) $\frac{x+1}{|x-3|} \geq 0$
 $x+1 \geq 0 \rightarrow x \geq -1$
 $|x-3| \neq 0 \rightarrow x \neq 3$
 $D_f = [1, 3) \cup (3, +\infty)$
 $\frac{4-x}{x^2+2x+1} \geq 0$
 $4-x \geq 0 \rightarrow x \leq 4$
 $D_f = (-\infty, 4]$

$\Delta = 4 - 14 = -10 < 0 \rightarrow$ مستقيم

ب) $[x] - 1 \geq 0$
 $[x] \geq 1$
 $x \geq 2$
 $1 - [x] \geq 0$
 $[x] \leq 1$
 $x \leq 2$
 $\{ \} \xrightarrow{\wedge} \emptyset$