

نویسنده: $\tan \frac{13\pi}{12} = \frac{1}{\sqrt{3}}$

① $\tan \frac{\pi}{4} = 1$ ⑦ $\tan \frac{5\pi}{12} = -1$ ⑬ $\tan \frac{11\pi}{12} = \frac{1}{\sqrt{3}}$

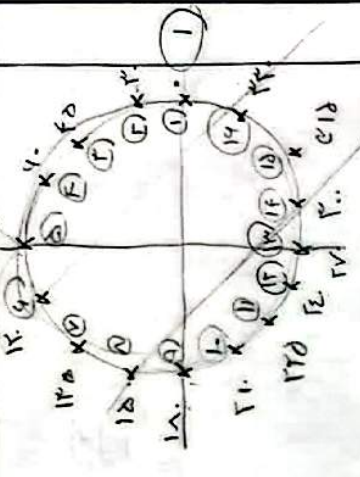
② $\tan \frac{2\pi}{4} = \sqrt{3}$ ⑧ $\tan \frac{6\pi}{4} = -\sqrt{3}$ ⑭ $\tan \frac{10\pi}{12} = -\frac{1}{\sqrt{3}}$

③ $\tan \frac{3\pi}{4} = 1$ ⑨ $\tan \frac{7\pi}{4} = 0$ ⑮ $\tan \frac{9\pi}{12} = -1$

④ $\tan \frac{4\pi}{4} = \sqrt{3}$ ⑩ $\tan \frac{8\pi}{4} = +\frac{\sqrt{3}}{3}$

⑤ $\tan \frac{5\pi}{4} = -\sqrt{3}$ ⑪ $\tan \frac{9\pi}{4} = +1$ ⑯ $\tan \frac{11\pi}{4} = -\sqrt{3}$

⑥ $\tan \frac{6\pi}{4} = -\sqrt{3}$ ⑫ $\tan \frac{10\pi}{4} = \sqrt{3}$



رابط $\sin \frac{\pi}{4} + \cos \pi + \tan \frac{5\pi}{12} = \sin 135^\circ + \cos 180^\circ + \tan 135^\circ = \frac{1}{\sqrt{2}} - 1 + \tan 135^\circ = \frac{1}{\sqrt{2}} - 1 + \tan 45^\circ = \frac{1}{\sqrt{2}} - 1 + 1 = \frac{1}{\sqrt{2}}$

② $-\cos \frac{5\pi}{4} + \sin \frac{7\pi}{12} - \tan \frac{11\pi}{12} = -(-\frac{\sqrt{3}}{2}) + \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{3}}$

ج) $\cot \frac{\pi}{4} + \cot \frac{5\pi}{12} - \tan \frac{11\pi}{12} = -\frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{3} + \frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{3} + \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$

د) $\cos(\sin \pi) + \sin(\pi \cos \frac{1}{\sqrt{2}}) = \cos(0) = 1 + \sin(90^\circ) = 1 + 1 = 2$

$f(x) = \sqrt{x^2 + 4x + 4}$ $x = a \rightarrow$ دوسری مرتبه $\rightarrow a^2 + 4a = 4a + 4 \rightarrow a^2 = 4 \rightarrow a = \pm 2$

$a = 1 \rightarrow \rho_{x^2+4x+4} = \rho_{(x+2)^2} = x+2 \rightarrow \rho_{(1)^2} = 1 \rightarrow \rho_{(1)} = 1$

$a = -1 \rightarrow \rho_{x^2+4x+4} = x+2 \rightarrow \rho_{(-1)^2} = -1 \rightarrow \rho_{(-1)} = -1$

نکته: $\rho_{(1)} = 1$ و $\rho_{(-1)} = -1$ را می توانیم از $a^2 = 4$ نیز بدست آوریم.

$\rho_{(x)} = \sqrt{x^2 + 4x + 4} = |x+2|$ $\rightarrow x+2 \rightarrow x = -2$

$a+b = a-4 \rightarrow a+b = 18+4 = 22$

الف) $y = \frac{1}{x^2 - 4x} = \frac{1}{x^2(x-4)} = \frac{1}{x^2} + \frac{1}{x-4} = \frac{1}{x^2} + \frac{1}{x-4}$

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

ج) $\frac{1}{x^2 + 4x + 4} = \frac{1}{(x+2)^2} = \frac{1}{x^2} + \frac{1}{x+2} = \frac{1}{x^2} + \frac{1}{x+2}$

د) $\frac{1}{x^2 + 4x + 4} = \frac{1}{(x+2)^2} = \frac{1}{x^2} + \frac{1}{x+2} = \frac{1}{x^2} + \frac{1}{x+2}$