1. **સાબિત કરો કે, $\frac{\tan A + \sec A - 1}{\tan A - \sec A + 1} = \frac{1 + \sin A}{\cos A}$. <u>ગણતરી માટેનું સૂચન</u> : $\sec^2 A - \tan^2 A = 1$ ત્રિકોણમિતિય નિત્યસમ અને $a^2 - b^2 = (a + b)(a - b)$ નો ઉપયોગ કરો.**

➥ ડા.બા. $= \frac{\tan A + \sec A - 1}{\tan A - \sec A + 1}$

$= \frac{\tan A + \sec A - (\sec^2 A - \tan^2 A)}{(\tan A - \sec A + 1)}$ $[\because \sec^2 A - \tan^2 A = 1]$

$= \frac{(\tan A + \sec A) - (\sec A + \tan A)(\sec A - \tan A)}{(1 - \sec A + \tan A)}$

$= \frac{(\sec A + \tan A)(1 - \sec A + \tan A)}{1 - \sec A + \tan A}$

$= \sec A + \tan A = \frac{1}{\cos A} + \frac{\sin A}{\cos A}$

$= \frac{1 + \sin A}{\cos A}$ = જ.બા.

2. **જો $a \cos\theta + b \sin\theta = m$ અને $a \sin\theta - b \cos\theta = n$ હોય, તો સાબિત કરો કે, $a^2 + b^2 = m^2 + n^2$.**

➥ $a \cos\theta + b \sin\theta = m$ ....(i)

અને $a \sin\theta - b \cos\theta = n$ આપેલ છે. ....(ii)

પરિણામ (i) અને (ii) નો વર્ગ કરી સરવાળો કરો.

$m^2 + n^2 = (a \cos\theta + b \sin\theta)^2 + (a \sin\theta - b \cos\theta)^2$

$= a^2 \cos^2\theta + b^2 \sin^2\theta + 2ab \sin\theta \cdot \cos\theta + a^2 \sin^2\theta + b^2 \cos^2\theta - 2ab \sin\theta \cdot \cos\theta$

$\therefore m^2 + n^2 = a^2(\cos^2\theta + \sin^2\theta) + b^2(\sin^2\theta + \cos^2\theta)$

$\therefore m^2 + n^2 = a^2 + b^2$

આમ, માંગેલ પરિણામ સાબિત થાય છે.

3. **કિંમત મેળવો : tan22° 30'.**

➥ આપણે જાણીએ છીએ કે,

$$\tan\left(\frac{\theta}{2}\right) = \frac{\sin\left(\frac{\theta}{2}\right)}{\cos\left(\frac{\theta}{2}\right)} = \frac{2\sin\left(\frac{\theta}{2}\right)\cdot\cos\left(\frac{\theta}{2}\right)}{2\cos^2\left(\frac{\theta}{2}\right)}$$

$$\Rightarrow \tan\frac{\theta}{2} = \frac{\sin\theta}{1 + \cos\theta}$$

હવે $\theta = 45°$ લેતાં,

$$\therefore \tan(22° 30') = \frac{\sin(45°)}{1 + \cos(45°)}$$

$$= \frac{\frac{1}{\sqrt{2}}}{1 + \frac{1}{\sqrt{2}}} = \frac{1}{\sqrt{2} + 1}$$

4. **સાબિત કરો : $\sin 4A = 4\sin A\cos^3 A - 4\cos A \sin^3 A$.**

➥ ડા.બા. $= \sin(4A)$

$= 2 \sin(2A) \cdot \cos(2A)$

$= 2 (2\sin A \cdot \cos A)(\cos^2 A - \sin^2 A)$

$= 4 \sin A \cdot \cos^3 A - 4\cos A \sin^3 A$ = જ.બા.

[$\because$ cos 2A = $\cos^2$A − $\sin^2$A અને sin2A = 2sinA · cosA]

$\therefore$ ડા.બા. = જ.બા.

5. જો tanθ + sinθ = m અને tanθ − sinθ = n હોય તો સાબિત કરો કે, $m^2 - n^2 = 4\sin\theta\tan\theta$.

➥ $\tan\theta + \sin\theta = m$ ....(i)

અને $\tan\theta - \sin\theta = n$ આપેલ છે. ....(ii)

હવે $m + n = \tan\theta + \sin\theta + \tan\theta - \sin\theta$

$m + n = 2\tan\theta$ ....(iii)

તેમજ $m - n = \tan\theta + \sin\theta - \tan\theta + \sin\theta$

$m - n = 2\sin\theta$ ....(iv)

પરિણામ (iii) અને (iv) પરથી,

$(m + n)(m - n) = 4\sin\theta \cdot \tan\theta$

$m^2 - n^2 = 4\sin\theta \cdot \tan\theta$

જે માંગેલ પરિણામ છે.

6. જો tan(A + B) = p અને tan(A − B) = q, તો બતાવો કે, $\tan 2A = \dfrac{p+q}{1-pq}$.

➥ અહીં $\tan(A + B) = p$ ....(i)

અને $\tan(A - B) = q$ ....(ii) આપેલ છે.

$2A = A + A$

$\therefore 2A = (A + B) + (A - B)$

$\tan(2A) = \tan[A + B + A - B]$

$$= \frac{\tan(A+B) + \tan(A-B)}{1 - \tan(A+B)\tan(A-B)} \quad \left[\because \tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}\right]$$

$$= \frac{p+q}{1-pq}$$ ($\because$ પરિણામ (i) અને (ii) પરથી)

7. જો cos α + cos β = 0 = sin α + sin β હોય, તો બતાવો કે, cos 2α + cos 2β = −2cos(α + β).

➥ $\cos\alpha + \cos\beta = 0 = \sin\alpha + \sin\beta$ આપેલ છે.

$\therefore (\cos\alpha + \cos\beta)^2 - (\sin\alpha + \sin\beta)^2 = 0$

$\therefore \cos^2\alpha + \cos^2\beta + 2\cos\alpha\cos\beta - \sin^2\alpha - \sin^2\beta - 2\sin\alpha\sin\beta = 0$

$\therefore \cos^2\alpha - \sin^2\alpha + \cos^2\beta - \sin^2\beta = 2(\sin\alpha\sin\beta - \cos\alpha\cos\beta)$

$\therefore \cos 2\alpha + \cos 2\beta = -2\cos(\alpha + \beta)$

જે માંગેલ પરિણામ છે.

8. જો $\dfrac{\sin(x+y)}{\sin(x-y)} = \dfrac{a+b}{a-b}$ હોય, તો $\dfrac{\tan x}{\tan y} = \dfrac{a}{b}$ મેળવો.

➥ $\dfrac{\sin(x+y)}{\sin(x-y)} = \dfrac{a+b}{a-b}$ આપેલ છે.

હવે બંને બાજુ યોગ-વિયોગ પ્રમાણ લેતાં,

$$\therefore \frac{\sin(x+y) + [\sin(x-y)]}{\sin(x+y) - \sin(x-y)} = \frac{a+b+a-b}{a+b-a+b}$$

$$\therefore \frac{2\sin\left(\frac{x+y+x-y}{2}\right)\cdot\cos\left(\frac{x+y-x+y}{2}\right)}{2\cos\left(\frac{x+y+x-y}{2}\right)\cdot\sin\left(\frac{x+y-x+y}{2}\right)} = \frac{2a}{2b}$$

$\left[\because \sin x + \sin y = 2\sin\dfrac{x+y}{2}\cdot\cos\dfrac{x-y}{2}\right.$ અને $\left.\sin x - \sin y = 2\cos\dfrac{x+y}{2}\cdot\sin\dfrac{x-y}{2}\right]$

$$\therefore \frac{\sin x \cdot \cos y}{\cos x \cdot \sin y} = \frac{a}{b}$$

$\therefore \dfrac{\tan x}{\tan y} = \dfrac{a}{b}$ જે માંગેલ પરિણામ છે.

9. જો cot θ + tan θ = 2cosec θ હોય તો θ મેળવો.

➥ $\cot\theta + \tan\theta = 2\operatorname{cosec}\theta$ આપેલ છે.

$\therefore \frac{\cos\theta}{\sin\theta} + \frac{\sin\theta}{\cos\theta} = \frac{2}{\sin\theta}$

$\therefore \frac{\cos^2 + \sin^2\theta}{\sin\theta \cdot \cos\theta} = \frac{2}{\sin\theta}$

$\therefore \frac{1}{\cos\theta} = 2 \quad [\because \sin^2\theta + \cos^2\theta = 1]$

$\therefore \cos\theta = \frac{1}{2} \Rightarrow \cos\theta = \cos\frac{\pi}{3}$

$\therefore \theta = 2n\pi \pm \frac{\pi}{3};\ n \in Z$

10. જો $2\sin^2\theta = 3\cos\theta$, જ્યાં $0 \le \theta \le 2\pi$ હોય તો θ મેળવો.

➥ આપેલ સમીકરણ $2\sin^2\theta = 3\cos\theta$

$\therefore 2 - 2\cos^2\theta = 3\cos\theta$

$\therefore 2\cos^2\theta + 3\cos\theta - 2 = 0$

$\therefore 2\cos^2\theta + 4\cos\theta - \cos\theta - 2 = 0$

$\therefore 2\cos\theta(\cos\theta + 2) - 1(\cos\theta + 2) = 0$

$\therefore (\cos\theta + 2)(2\cos\theta - 1) = 0$

$\therefore \cos\theta = -2$ જે શક્ય નથી. $[\because -1 \le \cos\theta \le 1]$

$\therefore 2\cos\theta = 1$

$\therefore \cos\theta = \frac{1}{2}$

$\therefore \cos\theta = \cos\frac{\pi}{3}$

$\therefore \theta = \frac{\pi}{3}$

તેમજ $\cos\theta = \cos\left(2\pi - \frac{\pi}{3}\right)$

$\therefore \cos\theta = \cos\frac{5\pi}{3}$

$\therefore \theta = \frac{5\pi}{3}$

આમ, θ ની કિંમત $\frac{\pi}{3}$ અને $\frac{5\pi}{3}$ થાય.

11. જો $\sec x \cos 5x + 1 = 0$, જ્યાં $0 < x \le \frac{\pi}{2}$ હોય, તો x મેળવો.

➥ $\sec x \cos 5x + 1 = 0$ આપેલ છે.

$\therefore \frac{\cos 5x}{\cos x} + 1 = 0 \quad \therefore \cos 5x + \cos x = 0$

$\therefore 2\cos\left(\frac{5x + x}{2}\right)\cdot\cos\left(\frac{5x - x}{2}\right) = 0 \quad \left[\because \cos x + \cos y = 2\cos\frac{x+y}{2}\cdot\cos\frac{x-y}{2}\right]$

$\therefore 2\cos 3x \cdot \cos 2x = 0$

$\therefore \cos 3x = 0$ અથવા $\cos 2x = 0$

$\therefore \cos 3x = \cos\frac{\pi}{2}$ અથવા $\cos 2x = \cos\frac{\pi}{2}$

$\therefore 3x = \frac{\pi}{2}$ અથવા $2x = \frac{\pi}{2}$

$\therefore x = \frac{\pi}{6}$ અથવા $x = \frac{\pi}{4}$

આમ, x ની કિંમતો $\frac{\pi}{4}$ અને $\frac{\pi}{6}$ થાય.

12. **જો $\frac{2\sin\alpha}{1+\cos\alpha+\sin\alpha} = y$ હોય, તો સાબિત કરો કે, $\frac{1-\cos\alpha+\sin\alpha}{1+\sin\alpha}$ નું મૂલ્ય પણ y છે.**

➡ $\frac{2\sin\alpha}{1+\cos\alpha+\sin\alpha} = y$ આપેલ છે.

હવે, $\frac{1-\cos\alpha+\sin\alpha}{1+\sin\alpha}$

$= \frac{(1-\cos\alpha+\sin\alpha)}{(1+\sin\alpha)} \cdot \frac{(1+\cos\alpha+\sin\alpha)}{(1+\cos\alpha+\sin\alpha)}$

$= \frac{\{(1+\sin\alpha)-\cos\alpha\}}{(1+\sin\alpha)} \cdot \frac{\{(1+\sin\alpha)+\cos\alpha\}}{(1+\cos\alpha+\sin\alpha)}$

$= \frac{(1+\sin\alpha)^2 - \cos^2\alpha}{(1+\sin\alpha)(1+\sin\alpha+\cos\alpha)}$

$= \frac{(1+\sin^2\alpha+2\sin\alpha)-\cos^2\alpha}{(1+\sin\alpha)(1+\sin\alpha+\cos\alpha)}$

$= \frac{1+\sin^2\alpha+2\sin\alpha-1+\sin^2\alpha}{(1+\sin\alpha)(1+\sin\alpha+\cos\alpha)}$

$= \frac{2\sin^2\alpha+2\sin\alpha}{(1+\sin\alpha)(1+\sin\alpha+\cos\alpha)}$

$= \frac{2\sin\alpha(1+\sin\alpha)}{(1+\sin\alpha)(1+\sin\alpha+\cos\alpha)}$

$= \frac{2\sin\alpha}{1+\sin\alpha+\cos\alpha} = y$

આમ, માંગેલ પરિણામ સાબિત થાય છે.

13. **જો $m\sin\theta = n\sin(\theta+2\alpha)$ હોય, તો સાબિત કરો કે, $\tan(\theta+\alpha)\cot\alpha = \frac{m+n}{m-n}$.**

➡ જો $m\sin\theta = n\sin(\theta+2\alpha)$ આપેલ છે.

બંને બાજુ યોગ વિયોગ પ્રમાણ લેતાં,

$\therefore \frac{\sin(\theta+2\alpha)+\sin\theta}{\sin(\theta+2\alpha)-\sin\theta} = \frac{m+n}{m-n}$

$\therefore \frac{2\sin\left(\frac{\theta+2\alpha+\theta}{2}\right)\cdot\cos\left(\frac{\theta+2\alpha-\theta}{2}\right)}{2\cos\left(\frac{\theta+2\alpha+\theta}{2}\right)\cdot\sin\left(\frac{\theta+2\alpha-\theta}{2}\right)} = \frac{m+n}{m-n}$

$\left[\because \sin x+\sin y = 2\sin\left(\frac{x+y}{2}\right)\cdot\cos\left(\frac{x-y}{2}\right)\right.$ અને $\left.\sin x-\sin y = 2\cos\left(\frac{x+y}{2}\right)\sin\left(\frac{x-y}{2}\right)\right]$

$\therefore \frac{\sin(\theta+\alpha)\cdot\cos\alpha}{\cos(\theta+\alpha)\cdot\sin\alpha} = \frac{m+n}{m-n}$

$\therefore \tan(\theta+\alpha)\cdot\cot\alpha = \frac{m+n}{m-n}$

જે માંગેલ પરિણામ છે.

14. **જો $\cos(\alpha+\beta) = \frac{4}{5}$ અને $\sin(\alpha-\beta) = \frac{5}{13}$ હોય, તથા α એ 0 તથા $\frac{\pi}{4}$ વચ્ચે હોય તો $\tan(2\alpha)$ની કિંમત મેળવો.**

➡ $\cos(\alpha+\beta) = \frac{4}{5}$ અને $\sin(\alpha-\beta) = \frac{5}{13}$ આપેલ છે.

હવે $\sin(\alpha + \beta) = \sqrt{1 - \frac{16}{25}} = \sqrt{\frac{9}{25}} = \pm \frac{3}{5}$

$\therefore \sin(\alpha + \beta) = \frac{3}{5}$

અને $\cos(\alpha - \beta) = \sqrt{1 - \frac{25}{169}} = \sqrt{\frac{144}{169}} = \pm \frac{12}{13}$

$\therefore \cos(\alpha - \beta) = \frac{12}{13}$

હવે, $\tan(\alpha+\beta) = \frac{\sin(\alpha+\beta)}{\cos(\alpha+\beta)}$ [α એ 0 અને $\frac{\pi}{4}$ વચ્ચે છે.]

$= \frac{\frac{3}{5}}{\frac{4}{5}} = \frac{3}{4}$

અને $\tan(\alpha - \beta) = \frac{\sin(\alpha - \beta)}{\cos(\alpha - \beta)} = \frac{\frac{5}{13}}{\frac{12}{13}} = \frac{5}{12}$

હવે, $\tan 2\alpha = \tan(\alpha + \beta + \alpha - \beta)$

$= \frac{\tan(\alpha + \beta) + \tan(\alpha - \beta)}{1 - \tan(\alpha + \beta) \cdot \tan(\alpha - \beta)}$

$\left[\because \tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \cdot \tan y}\right]$

$= \frac{\frac{3}{4} + \frac{5}{12}}{1 - \frac{3}{4} \cdot \frac{5}{12}} = \frac{\frac{9+5}{12}}{\frac{16-5}{16}} = \frac{14 \times 16}{12 \times 11} = \frac{56}{33}$

15. **જો $\tan x = \frac{b}{a}$ હોય, તો $\sqrt{\frac{a+b}{a-b}} + \sqrt{\frac{a-b}{a+b}}$ નું મૂલ્ય મેળવો.** <u>ગણતરી માટેનું સૂચન :</u> સૌ પ્રથમ આપેલ પદાવલીનું સંમેયીકરણ કરો અને $\cos 2x = \cos^2 x - \sin^2 x$ સૂત્રનો ઉપયોગ કરો.

➡ અહીં $\tan x = \frac{b}{a}$ આપેલ છે.

$\therefore \sqrt{\frac{a+b}{a-b}} + \sqrt{\frac{a-b}{a+b}} = \frac{\sqrt{(a+b)^2} + \sqrt{(a-b)^2}}{\sqrt{(a-b)(a+b)}}$

$= \frac{(a+b)+(a-b)}{\sqrt{a^2 - b^2}} = \frac{2a}{\sqrt{a^2-b^2}}$

$= \frac{2a}{a\sqrt{1-\left(\frac{b}{a}\right)^2}}$ $\left[\because \frac{b}{a} = \tan x\right]$

$= \frac{2}{\sqrt{1-\tan^2 x}} = \frac{2\cos x}{\sqrt{\cos^2 x - \sin^2 x}}$ $[\because \cos 2x = \cos^2 x - \sin^2 x]$

$= \frac{2\cos x}{\sqrt{\cos 2x}}$

16. **સાબિત કરો : $\cos\theta \cos\left(\frac{\theta}{2}\right) - \cos 3\theta \cos\left(\frac{9\theta}{2}\right) = \sin 7\theta \sin 8\theta$.**

➡ ડા.બા. $= \cos\theta \cos\left(\frac{\theta}{2}\right) - \cos 3\theta \cos\left(\frac{9\theta}{2}\right)$

$= \frac{1}{2}\left[2\cos\theta \cdot \cos\left(\frac{\theta}{2}\right) - 2\cos 3\theta \cdot \cos\left(\frac{9\theta}{2}\right)\right]$

$$= \frac{1}{2}\left[\cos\left(\theta+\frac{\theta}{2}\right)+\cos\left(\theta-\frac{\theta}{2}\right)-\cos\left(3\theta+\frac{9\theta}{2}\right)-\cos\left(3\theta-\frac{9\theta}{2}\right)\right]$$

$$= \frac{1}{2}\left[\cos\left(\frac{3\theta}{2}\right)+\cos\left(\frac{\theta}{2}\right)-\cos\left(\frac{15\theta}{2}\right)-\cos\left(\frac{3\theta}{2}\right)\right]$$

$$= \frac{1}{2}\left[\cos\left(\frac{\theta}{2}\right)-\cos\left(\frac{15\theta}{2}\right)\right]$$

$$= -\frac{1}{2}\left[2\sin\left(\frac{\theta+15\theta}{2}\right)\cdot\sin\left(\frac{\theta-15\theta}{2}\right)\right] \quad \left[\because \cos x-\cos y=-2\sin\frac{x+y}{2}\cdot\sin\frac{x-y}{2}\right]$$

$$= -\frac{1}{2}\left[2\sin(8\theta)\cdot\sin(-7\theta)\right]$$

$= +(\sin 8\theta \cdot \sin 7\theta) =$ જ.બા.

$\therefore$ ડા.બા. = જ.બા.

17. જો $\tan\theta = \dfrac{\sin\alpha - \cos\alpha}{\sin\alpha + \cos\alpha}$ હોય તો સાબિત કરો કે, $\sin\alpha + \cos\alpha = \sqrt{2}\cos\theta$.

➡ અહીં $\tan\theta = \dfrac{\sin\alpha - \cos\alpha}{\sin\alpha + \cos\alpha}$ આપેલ છે.

$$\therefore \tan\theta = \frac{\cos\alpha\,(\tan\alpha - 1)}{\cos\alpha\,(\tan\alpha + 1)}$$

$$\therefore \tan\theta = \frac{\tan\alpha - \tan\frac{\pi}{4}}{1+\tan\frac{\pi}{4}\cdot\tan\alpha} \quad \left[\because \tan\frac{\pi}{4}=1\right]$$

$$\therefore \tan\theta = \tan\left(\alpha-\frac{\pi}{4}\right)$$

$$\therefore \theta = \alpha - \frac{\pi}{4} \Rightarrow \alpha = \theta + \frac{\pi}{4}$$

$$\therefore \sin\alpha + \cos\alpha = \sin\left(\theta+\frac{\pi}{4}\right)+\cos\left(\theta+\frac{\pi}{4}\right)$$

$$= \sin\theta\cdot\cos\frac{\pi}{4}+\cos\theta\cdot\sin\frac{\pi}{4}+\cos\theta\cdot\cos\frac{\pi}{4}-\sin\theta\cdot\sin\frac{\pi}{4}$$

$$= \frac{1}{\sqrt{2}}\sin\theta+\frac{1}{\sqrt{2}}\cos\theta+\frac{1}{\sqrt{2}}\cos\theta-\frac{1}{\sqrt{2}}\sin\theta \left[\because \sin\frac{\pi}{4}=\cos\frac{\pi}{4}=\frac{1}{\sqrt{2}}\right]$$

$$= \frac{2}{\sqrt{2}}\cdot\cos\theta = \sqrt{2}\cos\theta$$

18. જો $\sin\theta + \cos\theta = 1$ હોય તો θ નું સામાન્ય મૂલ્ય મેળવો. <u>ગણતરી માટેનું સૂચન :</u> $\sin\theta = \sin\alpha$ હોય તો $\theta = n\pi + (-1)^n \cdot \alpha$ સમીકરણનો ઉકેલ થાય.

➡ આપેલ છે કે, $\sin\theta + \cos\theta = 1$

બંને બાજુ વર્ગ કરતાં,

$\sin^2\theta + \cos^2\theta + 2\sin\theta \cdot \cos\theta = 1$

$\therefore 1 + 2\sin\theta \cdot \cos = 1 \quad [\because \sin 2x = 2\sin x \cos x]$

$\therefore \sin 2\theta = 0 \Rightarrow 2\theta = n\pi + (-1)^n \cdot 0, \quad n \in Z$

$$\therefore \theta = \frac{n\pi}{2}$$

અન્ય રીત :

$\sin\theta + \cos\theta = 1$

$$\therefore \frac{1}{\sqrt{2}}\cdot\sin\theta + \frac{1}{\sqrt{2}}\cdot\cos\theta = \frac{1}{\sqrt{2}}$$

$$\therefore \sin\theta\cdot\cos\frac{\pi}{4}+\cos\theta\cdot\sin\frac{\pi}{4} = \frac{1}{\sqrt{2}} \quad \left[\because \sin\frac{\pi}{4}=\frac{1}{\sqrt{2}}=\cos\frac{\pi}{4}\right]$$

$\therefore \sin\left(\theta + \frac{\pi}{4}\right) = \sin\frac{\pi}{4}$ $[\because \sin(x+y) = \sin x \cdot \cos y + \cos x \cdot \sin y]$

$\therefore \theta + \frac{\pi}{4} = n\pi + (-1)^n \frac{1}{4}; \quad n \in Z$

$\therefore \theta = n\pi + (-1)^n \frac{\pi}{4} - \frac{\pi}{4}; \quad n \in Z$

19. સમીકરણ $\tan\theta = -1$ અને $\cos\theta = \frac{1}{\sqrt{2}}$ નું સમાધાન કરતી θ ની કિંમત મેળવો.

➡ અહીં $\tan\theta = -1$ ....(i)

અને $\cos\theta = \frac{1}{\sqrt{2}}$ ....(ii) આપેલા સમીકરણો છે.

સમીકરણ (i) પરથી $\tan\theta = -\tan\left(\frac{\pi}{4}\right)$

$\therefore \tan\theta = \tan\left(2\pi - \frac{\pi}{4}\right) \Rightarrow \tan\theta = \tan\left(\frac{7\pi}{4}\right)$

$\therefore \theta = \frac{7\pi}{4}$

સમી. (ii) પરથી, $\cos\theta = \frac{1}{\sqrt{2}} \therefore \cos\theta = \cos\frac{\pi}{4}$

$\therefore \cos\theta = \cos\left(2\pi - \frac{\pi}{4}\right) \Rightarrow \cos\theta = \cos\frac{7\pi}{4}$

$\therefore \theta = \frac{7\pi}{4}$

અહીં θ ની મૂળભૂત સામાન્ય કિંમત $\theta = 2n\pi + \frac{7\pi}{4}$ થાય. જ્યાં, $n \in Z$.