

Soln x (let) = $\sin \frac{8\pi}{3} \cos \frac{23\pi}{6} + \cos \left(\frac{13\pi}{6}\right) \sin \left(\frac{35\pi}{6}\right)$

Divide by 360

$$\begin{array}{r} 360 \overline{) 480} \quad | \\ \underline{-360} \\ 120 \text{ Smaller} \end{array}$$

$$\begin{array}{r} 360 \overline{) 690} \quad | \\ \underline{-360} \\ 330 \text{ Smaller} \end{array}$$

$$\begin{array}{r} 360 \overline{) 390} \quad | \\ \underline{-360} \\ 30 \text{ Smaller} \end{array}$$

$$\begin{array}{r} 360 \overline{) 1050} \quad | \\ \underline{-720} \\ 330 \\ \underline{-330} \\ 0 \end{array}$$

Smaller
OK

$$= [\sin 8(60^\circ)] [\cos 23(30^\circ)] + [\cos 13(30^\circ)] [\sin 35(30^\circ)]$$

Here, $\frac{\pi}{3} = 60^\circ$, $\frac{\pi}{6} = 30^\circ$ & $\frac{\pi}{6} = 30^\circ$, $\frac{\pi}{6} = 30^\circ$

$$= [\sin 480^\circ] [\cos 690^\circ] + [\cos 390^\circ] [\sin 1050^\circ]$$

we know that: Make sure the angle is not greater than 360°. If angle is greater than 360° then divide by 360° and sure the remainder is smaller than 360°

$$= [\sin 120^\circ] [\cos 330^\circ] + [\cos 30^\circ] [\sin 330^\circ]$$

$$= [\sin (180 - 60)] [\cos (360 - 30)] + \left[\frac{\sqrt{3}}{2}\right] [\sin (360 - 30)]$$

$$= [+ \sin 60^\circ] [+ \cos 30^\circ] + \left[\frac{\sqrt{3}}{2}\right] [-\sin 30^\circ]$$

$$= \left(\frac{\sqrt{3}}{2}\right) \left(\frac{\sqrt{3}}{2}\right) + \left(\frac{\sqrt{3}}{2}\right) \left(\frac{1}{2}\right)$$

$$= \frac{3}{4} - \frac{\sqrt{3}}{4} = \frac{3 - \sqrt{3}}{4} = \text{Ans}$$