

$$\text{الف) } \frac{\sqrt{p}}{p} (\cos x - \sin x) \times \frac{\sqrt{p}}{p} (\cos x + \sin x) = \frac{1}{p} \rightarrow \cos^2 x - \sin^2 x = \frac{1}{p} \quad (5)$$

$$\rightarrow \cos^2 x = \frac{1}{p} \Rightarrow px = k\pi \pm \frac{\pi}{p} \rightarrow x = k\pi \pm \frac{\pi}{p}$$

$$\text{ب) } \cos^2 x \cos \frac{\pi}{p} + \sin^2 x \sin \frac{\pi}{p} = -\sin^2 x$$

$$\frac{\sin^2 x + \sin^2 x}{\sin^2 x} = \cos^2 x + \sin^2 x \Rightarrow \sin^2 x = 0 \Rightarrow px = k\pi \Rightarrow x = \frac{k\pi}{p} \quad (6)$$

$$\frac{\sin \frac{x}{p}}{1 + \cos \frac{x}{p}} = \frac{1 + \cos \frac{x}{p}}{\sin \frac{x}{p}} \Rightarrow \sin^2 \frac{x}{p} = 1 + \cos^2 \frac{x}{p} + p \cos \frac{x}{p} \quad (7)$$

$$\Rightarrow p \cos^2 \frac{x}{p} + p \cos \frac{x}{p} \begin{cases} \rightarrow \cos \frac{x}{p} = 0 \Rightarrow x = -\pi, \pi \Rightarrow |\pi - (-\pi)| = \boxed{2\pi} \\ \rightarrow \cos \frac{x}{p} = -1 \Rightarrow x = \dots \end{cases}$$

$$-\sin^2 x - \sin^2 x \cos^2 x = 0 \Rightarrow -\sin^2 x (1 + \cos^2 x)$$

$$\begin{aligned} \rightarrow \sin x = 0 &\Rightarrow x = 0, \pi, 2\pi \\ \rightarrow \cos^2 x = -1 &\Rightarrow x = \frac{\pi}{p}, \pi, \frac{3\pi}{p} \end{aligned} \rightarrow \dots$$

$$\tan\left(\frac{\pi}{p} - x\right) = \tan(px - \frac{\pi}{p}) \Rightarrow px = \frac{\pi}{p} \Rightarrow x = \frac{\pi}{14} \Rightarrow x = \frac{k\pi}{14} - k\pi \quad (8)$$

$$\sqrt{(\sin x + \cos x)^2} = |\sin x + \cos x| = \sin x + \cos x = \sqrt{p} (\cos^2 x - \sin^2 x) \quad (9)$$

$$\cos x - \sin x = \frac{1}{\sqrt{p}} \Rightarrow x = \frac{\pi}{14}$$

$$(\cos^2 x - \sin^2 x) (\cos^2 x - \sin^2 x)$$

الف) $\sin^p x \cos^p x = 1 \Rightarrow -\cos^p x = 1 \Rightarrow \cos^p x = -1$

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$$y x = y k \pi + \pi \Rightarrow \boxed{x = k \pi + \frac{\pi}{y}}$$

ب) $(\sin x - \cos x)(\sin^p x + \cos^p x + \sin x \cos x) = -1$