

الف) $\frac{2\sin^2\theta + \cos^2\theta - 1}{\sin\theta} = 0 \Rightarrow \sin\theta = \frac{1}{2} \Rightarrow \theta = \frac{\pi}{6} + 2k\pi$
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ب) $\frac{2\cos^2\theta + \sin^2\theta - 1}{\cos\theta} = 0 \Rightarrow \cos\theta = \frac{1}{2} \Rightarrow \theta = \frac{\pi}{3} + 2k\pi$
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 $\sin\theta = \frac{1}{2} \Rightarrow \theta = \frac{\pi}{6} + 2k\pi$
 $\cos\theta = \frac{1}{2} \Rightarrow \theta = \frac{\pi}{3} + 2k\pi$
 $\sin\theta = -\frac{1}{2} \Rightarrow \theta = \frac{7\pi}{6} + 2k\pi$
 $\cos\theta = -\frac{1}{2} \Rightarrow \theta = \frac{2\pi}{3} + 2k\pi$

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$\sin\theta = -\cos\theta \Rightarrow \sin\theta = \cos(\theta - \frac{\pi}{2})$
 $\sin\theta = \sin(\frac{\pi}{2} - \theta) \Rightarrow \theta = \frac{\pi}{2} - \theta \Rightarrow \theta = \frac{\pi}{4}$
 $\theta = \frac{\pi}{4} + 2k\pi$

الف) $\cos(\frac{\pi}{2} + \theta) \sin(\frac{\pi}{2} + \theta) = \frac{1}{2}$
 $\sin\theta \cos\theta = \frac{1}{2} \Rightarrow \sin 2\theta = 1 \Rightarrow 2\theta = \frac{\pi}{2} + 2k\pi \Rightarrow \theta = \frac{\pi}{4} + k\pi$
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$$\tan \frac{\pi}{2} = \cot \frac{\pi}{2} \Rightarrow \tan \frac{\pi}{2} = \tan \frac{\pi}{2} - \frac{\pi}{2}$$

$$\Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2} = \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2}$$

$$(\frac{\pi}{2} + \frac{\pi}{2}) \leq \frac{\pi}{2}$$

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

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$$1 \cos \frac{\pi}{2} = -1 \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2}$$

$$\tan(\frac{\pi}{2} - \frac{\pi}{2}) = \frac{\pi}{2}$$

$$\frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2}$$

$$1 + \sin \frac{\pi}{2} = \frac{\pi}{2} \cos \frac{\pi}{2} \quad \sin \frac{\pi}{2} \cos \frac{\pi}{2} + \sin \frac{\pi}{2} = \frac{\pi}{2} \cos \frac{\pi}{2} \Rightarrow \sin \frac{\pi}{2} \cos \frac{\pi}{2} + \sin \frac{\pi}{2} = \frac{\pi}{2} \cos \frac{\pi}{2}$$

$$\frac{\pi}{2} \cos \frac{\pi}{2} - \frac{\pi}{2} = \frac{\pi}{2} \cos \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$$\frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} + \frac{\pi}{2}$$

$$\frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} + \frac{\pi}{2}$$

$$(\sin \frac{\pi}{2} + \cos \frac{\pi}{2}) (\sin \frac{\pi}{2} - \cos \frac{\pi}{2}) = \cos \frac{\pi}{2} = -1 \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2} \quad \{\frac{\pi}{2}, \frac{\pi}{2}\}$$

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

$$\frac{\pi}{2} \leq \frac{\pi}{2} + \frac{\pi}{2}$$

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