

14. $\cos(-A) + \sin A = 0$

$\cos A + \sin A = 0$

$\rightarrow \cos A = -\sin A$

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

$\cos^2 A = \sin^2 A$

$1 - \sin^2 A = \sin^2 A$

$1 = \sin^2 A + \sin^2 A$

$1 = 2\sin^2 A$

$\frac{1}{2} = \sin^2 A$

$\sin A = \pm \sqrt{\frac{1}{2}}$

$\sin A = \pm \frac{\sqrt{2}}{2}$

RECALL

$\cos^2 A + \sin^2 A = 1$

$\cos^2 A = 1 - \sin^2 A$

$\sin A = \pm \frac{1}{\sqrt{2}}$

$\sin A = \pm \frac{\sqrt{2}}{2}$

$A = \cancel{\frac{\pi}{4}}, \frac{3\pi}{4}, \cancel{\frac{5\pi}{4}}, \frac{7\pi}{4}$

15. $\tan^2 A - \sqrt{3} \tan A - \tan A + \sqrt{3} = 0$

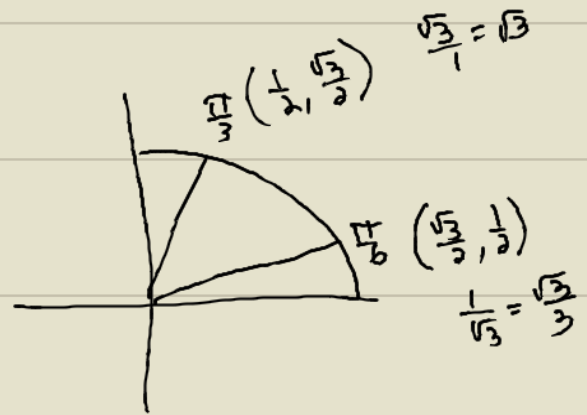
$\tan A (\tan A - \sqrt{3}) - 1 (\tan A - \sqrt{3}) = 0$

$(\tan A - \sqrt{3})(\tan A - 1) = 0$

$\tan A - \sqrt{3} = 0 \quad \tan A - 1 = 0$

$\tan A = \sqrt{3} \quad \tan A = 1$

$A = \frac{\pi}{3}, \frac{4\pi}{3}, \frac{\pi}{4}, \frac{5\pi}{4}$



16. $\sin A - \sqrt{3} \cos A = 2$

$\sin A = 2 + \sqrt{3} \cos A$

$(\sin A)^2 = (2 + \sqrt{3} \cos A)^2$

$\sin^2 A = (2 + \sqrt{3} \cos A)(2 + \sqrt{3} \cos A)$

$\sin^2 A = 4 + 2\sqrt{3} \cos A + 2\sqrt{3} \cos A + 3 \cos^2 A$

$\sin^2 A = 4 + 4\sqrt{3} \cos A + 3 \cos^2 A$

$1 - \cos^2 A = 4 + 4\sqrt{3} \cos A + 3 \cos^2 A$

RECALL

$\cos^2 A + \sin^2 A = 1$

$\sin^2 A = 1 - \cos^2 A$

$0 = 3 \cos^2 A + \cos^2 A + 4\sqrt{3} \cos A + 4 - 1$

$0 = 4 \cos^2 A + 4\sqrt{3} \cos A + 3$

$0 = (2 \cos A + \sqrt{3})(2 \cos A + \sqrt{3})$

$2 \cos A + \sqrt{3} = 0$

$2 \cos A = -\sqrt{3}$

$\cos A = -\frac{\sqrt{3}}{2}$

$A = \frac{5\pi}{6}, \frac{7\pi}{6}$

CHECK

$A = \frac{5\pi}{6}$

$A = \frac{7\pi}{6}$

$\sin \frac{5\pi}{6} - \sqrt{3} \cos \frac{5\pi}{6} \stackrel{?}{=} 2$

$\sin \frac{7\pi}{6} - \sqrt{3} \cos \frac{7\pi}{6} \stackrel{?}{=} 2$

$\frac{1}{2} - \sqrt{3} \left(-\frac{\sqrt{3}}{2}\right) \stackrel{?}{=} 2$

$-\frac{1}{2} - \sqrt{3} \left(-\frac{\sqrt{3}}{2}\right) \stackrel{?}{=} 2$

$\frac{1}{2} + \frac{3}{2} = 2$

$-\frac{1}{2} + \frac{3}{2} \stackrel{?}{=} 2$

NO