

$$\begin{aligned}
 f) \cos(-15^\circ) &= \cos 15^\circ \\
 &= \cos(45^\circ - 30^\circ) \\
 &= \cos 45^\circ \cos 30^\circ + \sin 45^\circ \sin 30^\circ \\
 &= \frac{\sqrt{2}}{2} \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2} \frac{1}{2}
 \end{aligned}$$

$$\boxed{\cos(-15^\circ) = \frac{\sqrt{2}}{4} (1 + \sqrt{3})}$$

11.

$$a) \tan\left(\frac{\pi}{4} - \frac{\pi}{3}\right) =$$

$$\begin{aligned}
 &= \tan \frac{\pi}{4} \cos \frac{\pi}{3} - \tan \frac{\pi}{3} \cos \frac{\pi}{4} \\
 &= \frac{\sqrt{2}}{2} \frac{1}{2} - \frac{\sqrt{3}}{2} \frac{\sqrt{2}}{2}
 \end{aligned}$$

$$= \frac{\sqrt{2}}{4} (1 - \sqrt{3}) //$$

$$b) \cos\left(-\frac{\pi}{6} - \frac{\pi}{4}\right) =$$

$$= \cos\left(\frac{\pi}{6} + \frac{\pi}{4}\right)$$

$$= \cos \frac{\pi}{6} \cos \frac{\pi}{4} - \sin \frac{\pi}{6} \sin \frac{\pi}{4}$$

$$= \frac{\sqrt{3}}{2} \frac{\sqrt{2}}{2} - \frac{1}{2} \frac{\sqrt{2}}{2}$$

$$= \frac{\sqrt{2}}{4} (\sqrt{3} - 1) //$$

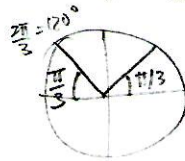
$$c) \tan\left(-\frac{3\pi}{4} + \frac{2\pi}{3}\right) =$$

$$= \tan\left(\frac{2\pi}{3} - \frac{3\pi}{4}\right)$$

$$= \frac{\tan \frac{2\pi}{3} - \tan \frac{3\pi}{4}}{1 + \tan \frac{2\pi}{3} \tan \frac{3\pi}{4}}$$

$$= \frac{-\sqrt{3} - (-1)}{1 + (-\sqrt{3})(-1)}$$

$$\tan \frac{2\pi}{3} = -\tan \frac{\pi}{3} = -\sqrt{3}$$



$$\tan \frac{3\pi}{4} = -\tan \frac{\pi}{4} = -1$$



$$= \frac{-\sqrt{3} - (-1)}{1 + (-\sqrt{3})(-1)}$$

$$= \frac{1 - \sqrt{3}}{1 + \sqrt{3}} //$$