

7.4

$$(6) \tan \frac{\pi}{6} = \frac{\sqrt{3}}{3} \quad \left(\tan \frac{\pi}{6} = \frac{\sin \frac{\pi}{6}}{\cos \frac{\pi}{6}} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{2} \cdot \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} \text{ or } \frac{\sqrt{3}}{3} \right)$$

$$(8) \csc \frac{\pi}{6} = \frac{1}{\sin \frac{\pi}{6}} = \frac{1}{\frac{1}{2}} = 2$$

$$(10) \tan \frac{\pi}{4} = \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$$

$$(12) \csc \frac{\pi}{4} = \frac{1}{\sin \frac{\pi}{4}} = \frac{1}{\frac{1}{\sqrt{2}}} = \sqrt{2}$$

$$(14) \tan \frac{\pi}{3} = \frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \frac{\sqrt{3}}{2} \cdot \frac{2}{1} = \sqrt{3}$$

$$(16) \csc \frac{\pi}{3} = \frac{1}{\sin \frac{\pi}{3}} = \frac{1}{\frac{\sqrt{3}}{2}} = \frac{2}{\sqrt{3}} \text{ or } \frac{2\sqrt{3}}{3}$$

(18) $\tan \frac{5\pi}{6}$ Ref $\angle = \pi - \frac{5\pi}{6} = \frac{\pi}{6}$, in QII so $\sin + \csc > 0$

$$\tan \frac{5\pi}{6} = -\tan \frac{\pi}{6} = -\frac{\sin \frac{\pi}{6}}{\cos \frac{\pi}{6}} = -\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}} = -\frac{1}{\sqrt{3}}$$

OR $-\frac{\sqrt{3}}{3}$

(20) $\csc \frac{11\pi}{6}$, Ref $\angle = 2\pi - \frac{11\pi}{6} = \frac{\pi}{6}$

in QIV,

so $\cos, \sec > 0$

$$\csc \frac{11\pi}{6} = -\csc \frac{\pi}{6} = -\frac{1}{\sin \frac{\pi}{6}}$$

$$= -\frac{1}{\frac{1}{2}} = \textcircled{-2}$$

(22) $\tan \frac{7\pi}{4}$, Ref $\angle = 2\pi - \frac{7\pi}{4} = \frac{\pi}{4}$

\in QIV,

so $\cos, \sec > 0$

$$= \frac{\pi}{4} \quad \tan \frac{7\pi}{4} = -\tan \frac{\pi}{4}$$

$$= -\frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} = -\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \textcircled{-1}$$

(32) $\csc 150^\circ$, Ref $\angle = 180 - 150 = 30^\circ$

\in QII,

so $\csc > 0$

$$\csc 150^\circ = \csc 30^\circ = \frac{1}{\sin 30^\circ} = \frac{1}{\frac{1}{2}} = \textcircled{2}$$