

1. $\sec \frac{14\pi}{3} \tan^2 \frac{37\pi}{6} - \csc \frac{17\pi}{2}$
 $\sec 840^\circ \tan^2 1110^\circ - \csc 1530^\circ$

$(-\frac{1}{2}, \frac{\sqrt{3}}{2})$
 $(\frac{\sqrt{3}}{2}, \frac{1}{2})$
 $(0, 1)$

$(\frac{2}{-1})(\frac{1}{\sqrt{3}})^2 - 1$
 $(-2)(\frac{1}{3}) - 1$
 $-\frac{2}{3} - 1$
 $-\frac{5}{3}$

$\frac{1/2}{\sqrt{3}/2}$

$(\cos \theta, \sin \theta)$

* $\sec \theta$ is the reciprocal of \cos .

* $\csc \theta$ is the reciprocal of $\sin \theta$

$\tan \theta = \frac{\sin \theta}{\cos \theta}$

$\cot \theta = \frac{\cos \theta}{\sin \theta}$

2. $\sin(-\frac{17\pi}{4}) \sec \frac{11\pi}{6} + \sin 15\pi$
 $\sin(-1215^\circ) \sec 330^\circ + \sin 270^\circ$

$(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$
 $(\frac{\sqrt{3}}{2}, -\frac{1}{2})$
 $(0, -1)$

$(\frac{\sqrt{2}}{2})(\frac{2}{\sqrt{3}}) + 0$
 $-\frac{2\sqrt{2}}{2\sqrt{3}} = -\frac{\sqrt{2}}{\sqrt{3}}$

if rationalize: $\frac{\sqrt{2} \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} = \frac{\sqrt{6}}{3}$

3. $\frac{\cos(-11\pi)}{2 - \cot \frac{43\pi}{6}}$
 $\frac{\cos(-1980^\circ)}{2 - \cot(1290^\circ)}$

$(-1, 0)$
 $(\frac{\sqrt{3}}{2}, \frac{1}{2})$

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

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

if you rationalize

$\frac{-1 \times 2 + \sqrt{3}}{2 - \sqrt{3} \times 2 + \sqrt{3}}$
 $\frac{-2 + \sqrt{3}}{4 - 3} \Rightarrow -2 + \sqrt{3}$

4. $\sec^2\left(-\frac{35\pi}{4}\right) \sin\left(-\frac{17\pi}{2}\right) + \cot^2\frac{29\pi}{3}$
 $\sec^2(-1575) \sin(-1530) + \cot^2 1740$

* $\cot \theta = \frac{\cos \theta}{\sin \theta}$

$$\left(-\frac{2}{\sqrt{2}}\right)(-1) + \left(\frac{1}{\sqrt{3}}\right)^2$$

$$\left(\frac{4}{2}\right)(-1) + \frac{1}{3}$$

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

$$-\frac{6}{3} + \frac{1}{3} = -\frac{5}{3}$$

5. $\csc^2\frac{4\pi}{3} + \tan\frac{15\pi}{4} + \cos\left(-\frac{13\pi}{6}\right) - \sin\frac{115\pi}{2} + \cos(-14\pi)$
 $\csc^2(240^\circ) + \tan(675^\circ) + \cos(-390^\circ) - \sin(10350^\circ) + \cos(-2520^\circ)$

$$\left(-\frac{2}{\sqrt{3}}\right)^2 \left(-\frac{\sqrt{3}}{\sqrt{2}}\right) + \left(\frac{\sqrt{3}}{2}\right) - (-1) + 1$$

$$\left(\frac{4}{3}\right)(-1) + \frac{\sqrt{3}}{2} + 1 + 1$$

$$-\frac{4}{3} + \frac{\sqrt{3}}{2} + 2$$

$$-\frac{4}{3} + \frac{6}{3} + \frac{\sqrt{3}}{2}$$

$$\frac{2}{3} + \frac{\sqrt{3}}{2}$$

$$\frac{4}{6} + \frac{3\sqrt{3}}{6}$$

$$\frac{4+3\sqrt{3}}{6}$$

6. $\sec 15\pi + \sqrt{2} \sin\frac{39\pi}{4} \sin\frac{21\pi}{2} - \csc^2\frac{100\pi}{3}$
 $\sec 2700^\circ + \sqrt{2} \sin 1755^\circ \sin 1890^\circ - \csc^2 6000^\circ$

$$(-1) + \sqrt{2} \left(-\frac{\sqrt{2}}{2}\right) (1) - \left(\frac{2}{\sqrt{3}}\right)^2$$

$$-1 - \frac{2}{2} - \frac{4}{3}$$

$$-1 - 1 - \frac{4}{3}$$

$$-2 - \frac{4}{3}$$

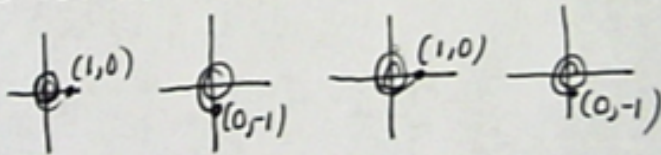
$$-\frac{6}{3} - \frac{4}{3} = -\frac{10}{3}$$

$$-1 + \frac{-\sqrt{4}}{2} - \frac{4}{3}$$

$$-1 + \frac{-2}{2} - \frac{4}{3}$$

7. $\cos 10\pi \cos \frac{7\pi}{2} - \sin 10\pi \sin \frac{7\pi}{2}$

$\cos 180^\circ \cos 630^\circ - \sin 180^\circ \sin 630^\circ$

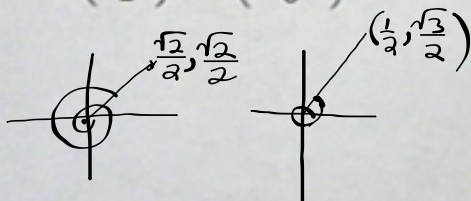


$(1)(0) - 0(-1)$

$0 - 0$

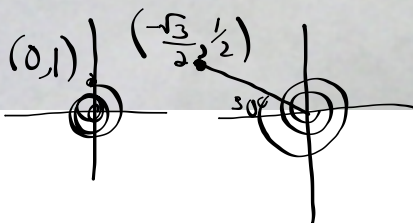
$= 0$

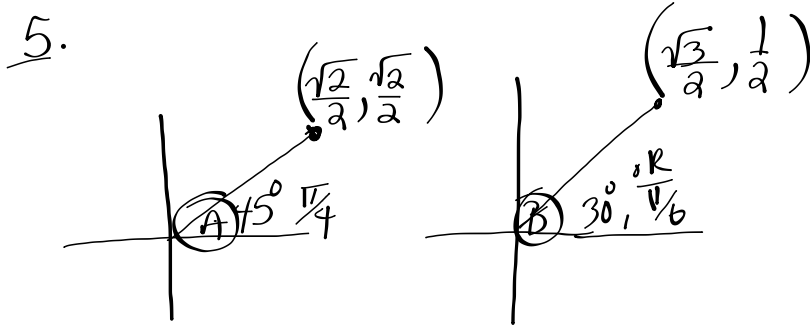
8. $\frac{\tan\left(-\frac{15\pi}{4}\right) + \sec\left(\frac{301\pi}{3}\right)}{\csc\left(\frac{25\pi}{2}\right) + \cot\left(-\frac{31\pi}{6}\right)} = \frac{\tan(-675^\circ) + \sec 18060}{\csc 2250^\circ + \cot(-930)}$



$\frac{1 + 2}{1 + (-\sqrt{3})}$

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





$$\sec A + \sec B$$

$$\frac{2}{\sqrt{2}} + \frac{2}{\sqrt{3}}$$

$$\frac{2}{\sqrt{2}} + \frac{2}{\sqrt{3}}$$

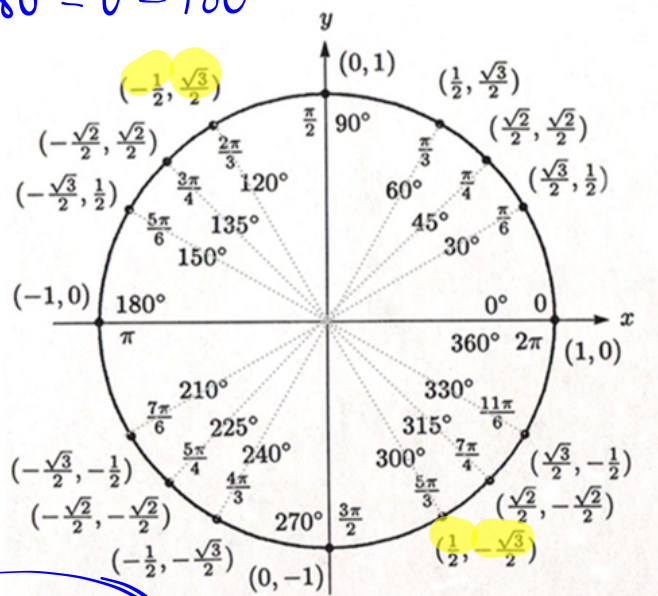
$$\tan \theta = -\sqrt{3} \quad ; \quad -180^\circ \leq \theta \leq 180^\circ$$

$$120^\circ \text{ or } \frac{2\pi}{3}$$

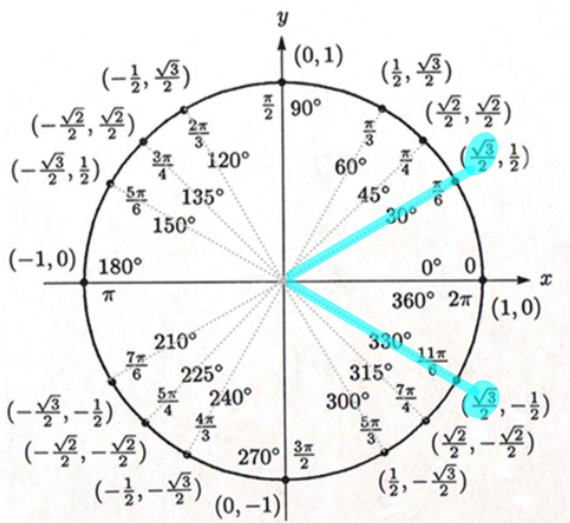
$$300^\circ \text{ or } \frac{5\pi}{3}$$

$$120^\circ \pm 360^\circ$$

$$300^\circ \pm 360^\circ$$



$$120^\circ, -60^\circ$$



$$\cos \theta = \frac{\sqrt{3}}{2}$$

$$-360 \leq \theta \leq 720$$

$$30^\circ$$

OR

$$330^\circ$$

$$\begin{array}{|l} -330^\circ \\ 30^\circ \\ 390^\circ \end{array}$$

$$\begin{array}{|l} -30^\circ \\ 330^\circ \\ 690^\circ \end{array}$$