

Key

Find each exact value. DO NOT USE A CALCULATOR!

4. $\csc \frac{\pi}{2} = 1$

5. $\sec 30^\circ = \frac{2}{\sqrt{3}}$

6. $\cot \frac{8\pi}{3} = -\sqrt{3}$

$\sin \frac{\pi}{2} = 1$

$\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$

Q2
tan neg

$\sec \frac{\pi}{6} = \frac{2\sqrt{3}}{3}$

8. $\cot 45^\circ = 1$

9. $\sec 270^\circ = \text{undef}$

12. $\csc \frac{7\pi}{2} = 1$

$\cos 270 = 0$
 $\sec = \frac{1}{0} \text{ undef}$

$\sin = \frac{1}{1}$
 $\csc = \frac{1}{1}$

13. $\sin 45^\circ + \cos 60^\circ = \frac{\sqrt{2}}{2} + \frac{1}{2} = \frac{\sqrt{2}+1}{2}$

14. $\sin \frac{3\pi}{2} + \tan \pi = -1 + 0 = -1$

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

$-1 + \frac{0}{-1} = -1$

15. $\sin 45^\circ \cos 45^\circ = \frac{1}{2}$

16. $\tan \frac{\pi}{4} \cos \frac{\pi}{3} = 1 \cdot \frac{1}{2} = \frac{1}{2}$

$\frac{\sqrt{2}}{2} \cdot \frac{\sqrt{2}}{2} = \frac{2}{4} = \frac{1}{2}$

$1 \cdot \frac{1}{2}$

17. $2 \sin 120^\circ - 3 \tan 210^\circ = 0$

18. $2 \sec(-\frac{\pi}{4}) + 4 \cot \frac{4\pi}{3} = 2\sqrt{2} + 4\sqrt{3}$

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

$2(\sqrt{2}) + 4(\frac{\sqrt{3}}{3})$

$\pi/3 \rightarrow \sqrt{3}/2$

$\cos = \frac{\pi}{4} \rightarrow \frac{\sqrt{2}}{2} \rightarrow \sec \frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$

FOR MY EXPERTS!!

2. Evaluate each expression without using a calculator.

a. $\sin\left(\frac{2\pi}{3}\right)\cos\left(\frac{\pi}{4}\right) - \cos\left(\frac{2\pi}{3}\right)\sin\left(\frac{\pi}{4}\right) = \underline{\hspace{2cm}}$

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

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

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

b. $\cos\left(\frac{7\pi}{6}\right)\cos\left(\frac{3\pi}{2}\right) - \sin\left(\frac{7\pi}{6}\right)\sin\left(\frac{3\pi}{2}\right) = \underline{\frac{-1}{2}}$

$$-\frac{\sqrt{3}}{2} \cdot 0 - -\frac{1}{2} \cdot -1$$

$$0 - \frac{1}{2} = -\frac{1}{2}$$

c. $\cos\left(\frac{17\pi}{6}\right)\cos 8\pi + \sin\left(\frac{17\pi}{6}\right)\sin 8\pi = \underline{\frac{-\sqrt{3}}{2}}$

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

Q2

$$-\frac{\sqrt{3}}{2} \cdot 1 + \frac{1}{2} \cdot 0$$

d. $\sin\left(-\frac{3\pi}{4}\right)\cos\left(\frac{5\pi}{3}\right) - \cos\left(-\frac{3\pi}{4}\right)\sin\left(\frac{5\pi}{3}\right) = \underline{\hspace{2cm}}$

Q3 Q4 Q3 Q4

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

$$\boxed{-\frac{\sqrt{2}}{4} - \frac{\sqrt{6}}{4}} = \frac{-\sqrt{2} - \sqrt{6}}{4}$$