

### 3.12B Equivalent Representations of Trig Functions

AP Precalculus

Name: \_\_\_\_\_

CA #2

Find the exact value of the sum or difference.

1.  $\sin\left(\frac{3\pi}{4} - \frac{\pi}{3}\right)$

2.  $\cos\left(\frac{3\pi}{2} + \frac{4\pi}{3}\right)$

3.  $\cos\left(\frac{\pi}{4} - \frac{7\pi}{6}\right)$

4.  $\sin\left(\frac{5\pi}{4} - \frac{5\pi}{6}\right)$

Simplify the following.

5.  $\sin\left(x - \frac{2\pi}{3}\right)$

6.  $\cos\left(\frac{\pi}{3} + \theta\right)$

7.  $\cos\left(x - \frac{\pi}{2}\right)$

Use trig identities to solve the trig equations for  $0 \leq x \leq 2\pi$ . Find exact values.

8.  $\cos(2x) = \cos^2 x$

9.  $\sin(2x) \csc x = \sqrt{2}$

10.  $\sin(2x) + \cos x = 0$

### Answers to 3.12B CA #2

1. $\frac{\sqrt{2}+\sqrt{6}}{4}$	2. $-\frac{\sqrt{3}}{2}$	3. $\frac{-\sqrt{6}-\sqrt{2}}{4}$
4. $\frac{\sqrt{6}+\sqrt{2}}{4}$	5. $-\frac{1}{2}\sin x - \frac{\sqrt{3}}{2}\cos x$	6. $\frac{1}{2}\cos \theta - \frac{\sqrt{3}}{2}\sin \theta$
7. $\sin x$	8. $x = 0, \pi, 2\pi$	
9. $x = \frac{\pi}{4}, \frac{7\pi}{4}$	10. $x = \frac{\pi}{2}, \frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6}$	