PreCalculus Name _____

Simplifying and Verifying with Sum & Difference Identities WS

#1-7. Simplify each of the following. Remember—first step is always to **EXPAND**

1. $\cos\left(\theta-\frac{3\pi}{2}\right)$

2. $\tan(\theta+\pi)$

3. $\cos(\pi-\theta)+\sin\left(\frac{\pi}{2}+\theta\right)$

4. $\sin(\theta+\pi)+\cos\left(\theta-\frac{\pi}{2}\right)$

5. $\tan(\theta+\pi)-\tan(\pi-\theta)$

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

7. $\cos\left(\theta+\frac{\pi}{4}\right)-\cos\left(\theta-\frac{\pi}{4}\right)$

#8-13. Verify the following identities.

8. $\cos(\pi-\theta)+\sin\left(\frac{\pi}{2}+\theta\right)=0$

9. $\sin(\theta+\pi)+\cos\left(\theta-\frac{\pi}{2}\right)=0$

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

11. $\cos(x+y)+\cos(x-y)=2\cos x\cos y$

12. $\tan(x+\pi)-\tan(\pi-x)=2\tan x$

13. $\tan\left(\frac{\pi}{4}-\theta\right)=\frac{1-\tan\theta}{1+\tan\theta}$