

Pre-AP Precalculus
WS – Double and Half Angles
Spring 2019

Name _____

Date _____ Per _____

Evaluate the following

1. $\sin \frac{5\pi}{8}$ 2. $\cos \frac{7\pi}{8}$

3. $\tan \frac{\pi}{8}$ 4. $\sin \frac{11\pi}{8}$

5. $\cos \frac{3\pi}{8}$ 6. $\tan \frac{3\pi}{8}$

Solve:

7. Given $\cos \alpha = -\frac{12}{13}$ and $\frac{\pi}{2} \leq \alpha \leq \pi$ find $\cos 2\alpha$.

8. Given $\sin \alpha = -\frac{3}{5}$ and $\pi \leq \alpha \leq \frac{3\pi}{2}$ find $\sin 2\alpha$.

9. Given $\sin \alpha = -\frac{3}{5}$ and $\frac{3\pi}{2} \leq \alpha \leq 2\pi$ find $\cos 2\alpha$.

10. Given $\tan \alpha = -\frac{5}{12}$ and $\frac{\pi}{2} \leq \alpha \leq \pi$ find $\tan 2\alpha$.

11. Given $\sin \alpha = -\frac{8}{17}$ and $\pi \leq \alpha \leq \frac{3\pi}{2}$ find $\tan \frac{\alpha}{2}$.

12. Given $\cos \alpha = -\frac{7}{25}$ and $\frac{\pi}{2} \leq \alpha \leq \pi$ find $\sin \frac{\alpha}{2}$.

13. Given $\sin \alpha = -\frac{3}{7}$ and $\pi \leq \alpha \leq \frac{3\pi}{2}$ find $\cos \frac{\alpha}{2}$.

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