

Double and half angle identities

Date _____ Period _____

Find the exact value of each.

1) $\tan^{-1} 5$

2) $\cos 105^\circ$

3) $\sin 165^\circ$

4) $\tan 195^\circ$

5) $\tan \theta = \frac{12}{5}$ where $\pi \leq \theta < \frac{3\pi}{2}$

Find $\sin 2\theta$

6) $\sin \theta = \frac{4}{5}$ where $\frac{\pi}{2} \leq \theta < \pi$

Find $\tan 2\theta$

7) $\sin \theta = -\frac{2\sqrt{2}}{3}$ where $\frac{3\pi}{2} \leq \theta < 2\pi$

Find $\cos 2\theta$

8) $\cos \theta = \frac{8}{17}$ where $\frac{7\pi}{2} \leq \theta < 4\pi$

Find $\cos 2\theta$ **Solve each equation for $0 \leq \theta < 2\pi$.**

9) $\sin^2 2\theta - 2\cos^2 \theta = 2\cos^2 \theta$

10) $2\sin \theta + \sin 2\theta = 2\sin 2\theta$

$$11) 2\cos^2 \theta + \cos 2\theta = 2$$

$$12) 4\sin^2 \theta = 3\sin \theta - \cos 2\theta$$