

## Trig Equations w/ Factoring + Fundamental Identities Date\_\_\_\_\_ Period\_\_\_\_

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

1)  $1 - 2\tan^2 \theta = -\tan^2 \theta$

2)  $4\sin^2 \theta + 4 = 5$

3)  $3\csc^2 \theta = 1 + 2\csc^2 \theta$

4)  $\sec^2 \theta - 6 = -4$

5)  $2\sqrt{3}\cos \theta \sin \theta - \cos \theta = 2\cos \theta$

6)  $\tan \theta \sin \theta - 4\tan \theta = -3\tan \theta$

7)  $\sqrt{2}\cot \theta - 3\sec \theta = \cot \theta \sec \theta - 3\sec \theta$

8)  $\sqrt{3}\sec \theta + \sec \theta \cot \theta = 0$

9)  $\sin^2 \theta = \sin \theta + 1 - \sin^2 \theta$

10)  $3\sin \theta + 2\sin^2 \theta = -1$

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

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

13)  $-\cos \theta + \sin \theta = 1$

14)  $3\sin \theta = \sqrt{3}\sin \theta + 3\cos \theta + 3\sin \theta$

## Trig Equations w/ Factoring + Fundamental Identities Date\_\_\_\_\_ Period\_\_\_\_

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

1)  $1 - 2\tan^2 \theta = -\tan^2 \theta$

2)  $4\sin^2 \theta + 4 = 5$

$\left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$

$\left\{\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}\right\}$

3)  $3\csc^2 \theta = 1 + 2\csc^2 \theta$

4)  $\sec^2 \theta - 6 = -4$

$\left\{\frac{\pi}{2}, \frac{3\pi}{2}\right\}$

$\left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$

5)  $2\sqrt{3}\cos \theta \sin \theta - \cos \theta = 2\cos \theta$

6)  $\tan \theta \sin \theta - 4\tan \theta = -3\tan \theta$

$\left\{\frac{\pi}{3}, \frac{\pi}{2}, \frac{2\pi}{3}, \frac{3\pi}{2}\right\}$

$\{0, \pi\}$

7)  $\sqrt{2}\cot \theta - 3\sec \theta = \cot \theta \sec \theta - 3\sec \theta$

8)  $\sqrt{3}\sec \theta + \sec \theta \cot \theta = 0$

$\left\{\frac{\pi}{4}, \frac{7\pi}{4}\right\}$

$\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

9)  $\sin^2 \theta = \sin \theta + 1 - \sin^2 \theta$

10)  $3\sin \theta + 2\sin^2 \theta = -1$

$\left\{\frac{\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}\right\}$

$\left\{\frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6}\right\}$

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

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

$\left\{\frac{3\pi}{2}\right\}$

$\left\{\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}\right\}$

13)  $-\cos \theta + \sin \theta = 1$

14)  $3\sin \theta = \sqrt{3}\sin \theta + 3\cos \theta + 3\sin \theta$

$\left\{\frac{\pi}{2}, \pi\right\}$

$\left\{\frac{2\pi}{3}, \frac{5\pi}{3}\right\}$