Kuta Software - Infinite Precalculus Name_____

Trig Equations w/ Factoring + Fundamental Identities Date_____ Period____

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$\{0, \pi\}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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