

Solving with Factoring & Identities - Round 3

Factor to solve each equation for $0 \leq \theta < 2\pi$.

1) $2\sqrt{3}\cos^2 \theta - \cos^2 \theta = 3\cos \theta - \cos^2 \theta$

2) $3\tan \theta + 2\cos \theta = -2\sqrt{3}\tan \theta \cos \theta + 2\cos \theta$

3) $\cot \theta \sec \theta - \cot \theta = \cot \theta$

4) $-\sec \theta \cot \theta + \sec \theta + 3\cot \theta = 3\cot \theta$

Use a Pythagorean Identity to solve each equation for $0 \leq \theta < 2\pi$.

5) $2\cot \theta = -\csc^2 \theta$

6) $3 + 3\csc \theta = -\cot^2 \theta$

7) $\csc \theta = -1 + \cot^2 \theta$

8) $-\csc \theta = -1 + \cot^2 \theta$

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Factor to solve each equation for $0 \leq \theta < 2\pi$.

1) $2\sqrt{3}\cos^2 \theta - \cos^2 \theta = 3\cos \theta - \cos^2 \theta$

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

2) $3\tan \theta + 2\cos \theta = -2\sqrt{3}\tan \theta \cos \theta + 2\cos \theta$

$$\left\{ 0, \frac{5\pi}{6}, \pi, \frac{7\pi}{6} \right\}$$

3) $\cot \theta \sec \theta - \cot \theta = \cot \theta$

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

4) $-\sec \theta \cot \theta + \sec \theta + 3\cot \theta = 3\cot \theta$

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

Use a Pythagorean Identity to solve each equation for $0 \leq \theta < 2\pi$.

5) $2\cot \theta = -\csc^2 \theta$

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

6) $3 + 3\csc \theta = -\cot^2 \theta$

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

7) $\csc \theta = -1 + \cot^2 \theta$

$$\left\{ \frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2} \right\}$$

8) $-\csc \theta = -1 + \cot^2 \theta$

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