

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

1) $-\sin 2\theta = 2\sin \theta - 2\sin 2\theta$

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

3) $0 = \cos 2\theta + 3\sin \theta + 4\sin 2\theta$

4) $\cos \theta + \cos 2\theta = 0$

5) $\cos \theta/2 = \cos \theta + 1$ Hint: Let $x = \theta/2$, $2x = \theta$

6) $\cos \theta = 2 + 3\sin (\theta/2)$

7) $3 + 2\cos \theta = 4\cos (\theta/2)$

8) $3\sin (\theta/2) + \cos \theta = 1$

Answers

1) $\{0, \pi/4, \pi, 7\pi/4\}$

2) $\{\pi/2, 7\pi/6, 3\pi/2, 11\pi/6\}$

3) $\{7\pi/6, 3\pi/2, 11\pi/6\}$

4) $\{\pi/3, \pi, 5\pi/3\}$

5) $\{2\pi/3, \pi\}$

6) No solution.

7) $\{2\pi/3\}$

8) $\{0, 2\pi/3, 4\pi/3\}$