Solving Trig Equations with Double Angle Substitutions

[For each interval, solve from (0, 2\pi) instead of degrees.]

1. Find all values of \( x \) in the interval \( 0^\circ < x < 360^\circ \) that satisfy the equation \( 3 \cos x + \sin 2x = 0 \).

2. Find all values of \( \theta \) in the interval \( 0^\circ \leq \theta < 360^\circ \) that satisfy the equation \( \cos \theta + \sin 2\theta = 0 \).

3. Find all values of \( \theta \) in the interval \( 0^\circ \leq \theta < 360^\circ \) that satisfy the equation \( \sin 2\theta = \sin \theta \).
4. Solve the equation $\cos 2x = \cos x$ algebraically for all values of $x$ in the interval $0^\circ \leq x < 360^\circ$.

5. Find all values of $\theta$ in the interval $0^\circ \leq \theta \leq 360^\circ$ which satisfy the equation $\sin \theta - \cos 2\theta = 0$.

6. In the interval $0^\circ \leq A \leq 360^\circ$, solve for all values of $A$ in the equation $\cos 2A = -3 \sin A - 1$. 