Warm Up: Find ALL solutions.

$$\cos 2\theta + \cos\theta = -1$$

$\cos 2\theta + \cos\theta + 1 = 0$

$2\cos^2\theta - 1 + \cos\theta + 1 = 0$

$2\cos^2\theta + \cos\theta = 0$

$\cos\theta(2\cos\theta + 1) = 0$

$\cos\theta = 0 \quad 2\cos\theta + 1 = 0$

$\theta = \pm\frac{\pi}{2} + 2\pi n$

$\theta = \pi/2 + \pi n$

$\cos\theta = -1/2$

$\theta = 2\pi/3 \;\&\; \frac{4\pi}{3}$

$\theta = \pm\frac{2\pi}{3} + 2\pi n$

EX2: Solve $\sin^2 3x - 2\sin 3x + 1 = 0$

$w = \sin 3x$ $\quad w^2 - 2w + 1 = 0$

$(w-1)(w-1) = 0$

$w = 1$

$\sin^{-1}(\sin 3x) = \sin^{-1}(1)$

$0 \le x \le 2\pi$

$x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}$

$\frac{3x}{3} = \frac{\frac{\pi}{2} + 2\pi n}{3}$

ALL SOL →

$x = \frac{\pi}{6} + \frac{2\pi}{3} n$

Assignment: WS Solving Trig Equations