Warmup 6: Solve

$$\cos x = \cos\frac{x}{2}$$

$\cos x = \sqrt{\frac{1-\cos x}{2}}$

$\cos^2 x = \frac{1-\cos x}{2}$

$2\cos^2 x = 1 - \cos x$

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

$(2\cos x - 1)(\cos x + 1) = 0$

$\cos x = \frac{1}{2}$ $\qquad$ $\cos x = -1$

$x = \frac{\pi}{3}, \frac{5\pi}{3}$ $\qquad$ $x = \pi$