

TRIGONOMETRIC EQUATIONS II

1. For the following problems you have been given an interval $[0, 2\pi)$. Find the interval for the half- or multiple-angle.

a. $2x$

b. $4x$

c. $\frac{x}{3}$

d. $\frac{x}{4}$

2. Solve each equation for exact solutions over the interval $[0, 2\pi)$.

a. $\sqrt{2} \cos 2x = 1$

b. $\sin^2 3x - 3 = -2$

c. $8 \csc^2 \frac{x}{2} = 4$

d. $\sin \frac{x}{2} = \cos \frac{x}{2}$

3. Use identities to solve the following equations for exact answers over the interval $[0, 2\pi)$.

a. $\cos 2x = \cos x$

b. $\sin 2x - \sin x = 0$

c. $\sin x \cos x = \frac{1}{4}$

4. Solve each equation for exact solutions over the interval $[0^\circ, 360^\circ)$. If necessary, express solutions to the nearest tenth of a degree.

a. $2 - \sin 2\theta = 2 \sin 2\theta$

b. $2\sqrt{3} \cos \frac{\theta}{2} = -3$

c. $\sqrt{2} \sin 3\theta - 1 = 0$