

## 6.6 Conditional Trig Equations

1. Find all real solutions in the interval  $[0, 2\pi)$ . Give exact values, not decimal approximations.

(a)  $\cos x = 0$

(b)  $\sin x = 1$

(c)  $\cos x = \frac{\sqrt{2}}{2}$

2. Find all solutions in degrees in the interval  $[0, 360^\circ)$ .

(a)  $\sin x = \frac{\sqrt{3}}{2}$

(b)  $\cos x = -\frac{\sqrt{3}}{2}$

3. Find all real solutions in the interval  $[0, 2\pi)$ . Use a calculator and round your answer to two decimal places.

(a)  $\sin \alpha = -0.321$

(b)  $\cos \alpha = -0.75$

(c)  $\tan \alpha = 3.91$

4. Find all real numbers that satisfy the equation. Give exact values.

(a)  $\sin \theta = -\sqrt{3}/2$

(b)  $\sec \theta = -2$

(c)  $\csc \theta = \sqrt{2}$

5. Find all angles in degrees that satisfy each equation. Give exact values.

(a)  $\cos \alpha = -1$

(b)  $\tan \alpha = 1$

(c)  $\sin \alpha = -\sqrt{2}/2$

6. Find all real solutions in the interval  $[0, 2\pi)$ . Give exact values.

(a)  $2 \cos^2 \theta = 1 - \cos \theta$

(b)  $4 \cos^2 \theta - 1 = 0$

(c)  $2 \cos^2 x + 5 \cos x + 2 = 0$

7. Find all real numbers that satisfy the equation.

(a)  $\cos\left(\frac{x}{2}\right) = \frac{1}{2}$

(b)  $2 \cos 2x = -\sqrt{2}$

(c)  $\sin\left(\frac{x}{3}\right) + 1 = 0$

8. Find all real numbers in the interval  $[0, 2\pi)$  that satisfy the equation.

(a)  $\sin 2x = \sqrt{2}/2$

(b)  $\tan 2x = 1$

9. Find all real numbers in the interval  $[0, 2\pi)$  that satisfy the equation.  
One of these problems will be on the test.

(a)  $\sin 2x = \cos x$

(b)  $\sin 2x = \sin x$

(c)  $\cos 2x = \cos x$

(d)  $\cos 2x = \sin x$