

1. Find all values of  $x$  in the interval  $[0, 2\pi]$  satisfying the equation.

(a)  $\cos(x) = 1$

(b)  $\sin(x) = \frac{-1}{2}$

(c)  $\tan(x) = \sqrt{3}$

(d)  $\sin(3x) = \frac{-1}{\sqrt{2}}$

(e)  $\cos\left(\frac{x}{3}\right) = \frac{1}{2}$

(f)  $\cot(x) - \csc(x) = 1$

(g)  $\sin(x) - \cos(x) = 0$

(h)  $\cos^2(x) + \cos(x) - 2 = 0$

(i)  $\sin(x)\cos(x) - \sin(x) - \cos(x) + 1 = 0$

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

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

(l)  $\cos^2(x) - 3\sin(x) - 3 = 0$

2. Give exact values for each of the following.

(a)  $\sin^{-1}(1)$

(b)  $\cos^{-1}\left(\frac{1}{\sqrt{2}}\right)$

(c)  $\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$

(d)  $\tan^{-1}(-1)$

(e)  $\cos^{-1}(-1)$

(f)  $\cot^{-1}(1)$

(g)  $\sec^{-1}(\sqrt{2})$

(h)  $\tan^{-1}(-\sqrt{3})$

(i)  $\csc^{-1}\left(\frac{2}{\sqrt{3}}\right)$

(j)  $\tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$

(k)  $\tan^{-1}(0)$