Some trigonometric equations are quadratic in form. $ax^2 + bx + c = 0$

If so, then you can solve by either the Quadratic Formula or by factoring.

Quadratic Formula: $$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Example 1: Factor to find all solutions of the equation in the interval $[0, 2\pi)$.

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

Example 2: Use the Quadratic Formula to solve the equation on the interval $[0, 2\pi)$.

$3 \tan^2 x + 4 \tan x - 4 = 0$

Example 3: Solve by first rewriting as a single trig function.

$3\sec^2 x - 2\tan^2 x - 4 = 0$

Be sure to check for extraneous solutions if you squared both sides of the equation.

Example 4: Find all solutions in the interval $[0, 2\pi)$.

$\sin x + 1 = \cos x$

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