#1 Solve the equation below for the given domain. Create a graph to make sure you have found all answers, and that they are correct.

$$2\cos(\theta + 40°) = -\sqrt{3}, \quad \theta \epsilon [0°, 720°]$$

#2 Solve the equation below for the given domain. Create a graph to make sure you have found all answers, and that they are correct.

$$\tan^2 x + 5\tan x - 6 = 0, \quad x \epsilon [0, 2\pi]$$

#3 Solve the equation below for the given domain. Create a graph to make sure you have found all answers, and that they are correct.

$$-13\sin\theta - 5 = 2\cos^2\theta, \quad \theta \epsilon [-360°, 450°]$$

#4 Solve the equation below for the given domain. Create a graph to make sure you have found all answers, and that they are correct.

$$(\sin x - 1)(12sinx - 6) = 0 \quad x\epsilon[-\frac{\pi}{2}, \frac{3\pi}{2}]$$

#5 Solve the equation below for the given domain. Create a graph to make sure you have found all answers, and that they are correct.

$$4\sin(2\theta) = 1, \quad \theta \epsilon [-180°, 225°]$$

#6 Prove algebraically that the given equation is an identity.

$$\cos^4 x - \sin^4 x = 1 - 2\sin^2 x$$

#7 Prove algebraically that the given equation is an identity.

$$\frac{\sec^2 x - 1}{\sin x} = \tan x \sec x$$

#8 Prove algebraically that the given equation is an identity.

$$\cos^2 x + \tan^2 x \cos^2 x = 1$$

#9 Prove algebraically that the given equation is an identity.

$$\frac{\tan^2 x - 6\tan x + 8}{\tan^2 x - 4} = \frac{\tan x - 4}{\tan x + 2}$$

#10 Prove algebraically that the given equation is an identity.

$$\tan x\,(\cot x + \tan x) = \sec^2 x$$

#11 Find the particular solutions below for the given interval.

Create a graph to make sure you have found all answers, and that they are correct.

$$x = \arctan(10) \qquad x \in [0,4\pi]$$

#12 Find the particular solutions below for the given interval. Create a graph to make sure you have found all answers, and that they are correct.

$$\theta = \arcsin\left(-\frac{\sqrt{3}}{2}\right) \quad \theta \in [-360°, 360°]$$