

## ANSWER ON QUESTION #54780 – Math – Trigonometry

Solve the following trig equation and state the solutions:  $2\sin x - \csc x = 0$

### Solution

Since  $\csc x = \frac{1}{\sin x}$  ( $x \neq \pi k, k \in \mathbb{Z}$ ), then

the equation  $2\sin x - \csc x = 0$  is equivalent to the following equation

$$2\sin x - \frac{1}{\sin x} = 0$$

We have

$$\sin^2 x = \frac{1}{2}$$

$$\sin x = \pm \frac{1}{\sqrt{2}}$$

$$x = \frac{\pi}{4} + \pi k, \quad k \in \mathbb{Z}$$

**Answer:**  $x = \frac{\pi}{4} + \pi k, \quad k \in \mathbb{Z}.$