

Question 10

Solve the equation

$$\sec(x) = 2$$

for all $x \in [0, 2\pi]$.

Question 10 - Solution

Step 1: Recall the definition of secant:

$$\sec(x) = \frac{1}{\cos(x)} \Rightarrow \frac{1}{\cos(x)} = 2 \Rightarrow \cos(x) = \frac{1}{2}$$

Step 2: Solve $\cos(x) = \frac{1}{2}$ in $[0, 2\pi]$:

The cosine is $\frac{1}{2}$ at:

$$x = \frac{\pi}{3}, \frac{5\pi}{3}$$

$$\boxed{x = \frac{\pi}{3}, \frac{5\pi}{3}}$$