

Math 1060 4.4.23

USE AN IDENTITY TO SOLVE ON  $[0, 2\pi)$

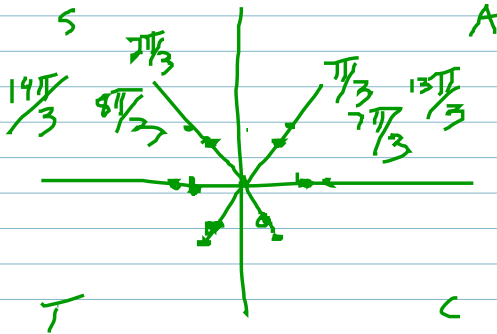
$$\sin(4x)\cos(x) - \sin(x)\cos(4x) = \frac{\sqrt{3}}{2}$$

$$\sin(a \mp b) = \sin(a)\cos(b) \mp \sin(b)\cos(a)$$



$$a = 4x, b = x$$

$$\sin(4x - x) = \sin(3x) = \frac{\sqrt{3}}{2}$$



$$3x = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{7\pi}{3}, \frac{13\pi}{3}, \frac{14\pi}{3}$$

$$x = \frac{\pi}{9}, \frac{2\pi}{9}, \frac{7\pi}{9}, \frac{13\pi}{9}, \frac{14\pi}{9}$$

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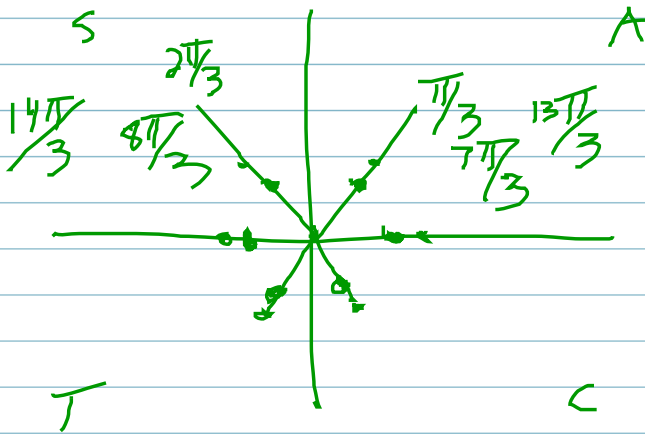
USE AN IDENTITY TO SOLVE ON  $[0, 2\pi)$ 

$$\underline{\sin(4x)\cos(x)} - \sin(x)\cos(4x) = \frac{\sqrt{3}}{2}$$

$$\sin(a-b) = \underline{\sin(a)\cos(b)} - \sin(b)\cos(a)$$

$$a=4x, b=x$$

$$\sin(4x-x) = \underline{\sin(3x)} = \frac{\sqrt{3}}{2}$$



$$\underline{3x} = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{7\pi}{3}, \frac{13\pi}{3}, \frac{14\pi}{3}$$

$$\underline{x} = \frac{\pi}{9}, \frac{2\pi}{9}, \frac{7\pi}{9}, \frac{13\pi}{9}, \frac{14\pi}{9}$$