

3.75
4

$$\cos \frac{x}{2} \cos \frac{3x}{2} - \sin x \sin 3x - \sin 2x \sin 3x \geq 0$$

$$\cos \frac{x}{2} \cos \frac{3x}{2} - \sin 3x (\sin x + \sin 2x) \geq 0$$

$$\cos \frac{x}{2} \cos \frac{3x}{2} - \sin 3x \cdot 2 \sin \frac{3x}{2} \cos \frac{x}{2} \geq 0$$

$$\cos \frac{x}{2} (\cos \frac{3x}{2} - 2 \sin 3x \sin \frac{3x}{2}) \geq 0$$

$$\frac{x}{2} = \frac{\pi}{2} + 2\pi k$$

$$\boxed{x = \pm \pi + 4\pi k}$$

$x = \pi$ plnnp

$$\cos \frac{3x}{2} - 4 \sin \frac{3x}{2} \cos \frac{3x}{2} \sin \frac{3x}{2} = 0$$

$$\cos \frac{3x}{2} (1 - 4 \sin^2 \frac{3x}{2}) = 0$$

$$\frac{3x}{2} = \pm \frac{\pi}{2} + 2\pi k$$

$$x = \pm \frac{\pi}{3} + \frac{4}{3}\pi k$$

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

plnnp
 $\frac{\pi}{9}, \frac{5\pi}{9}, \frac{7\pi}{9}, \frac{11\pi}{9}, \frac{13\pi}{9}$

$$\frac{3x}{2} = \frac{2\pi}{6} + 2\pi k \rightarrow k = \frac{3\pi - 4}{\pi}$$

$$\frac{3x}{2} = \frac{\pi}{6} + 2\pi k \rightarrow x = \frac{\pi}{9} + \frac{4}{3}\pi k$$

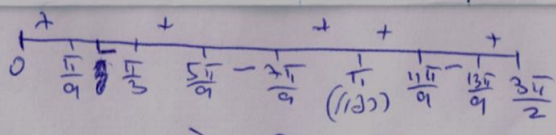
$$\sin \frac{3x}{2} = \pm \frac{1}{2}$$

$$\frac{3x}{2} = \frac{\pi}{6} + 2\pi k$$

$$\frac{3x}{2} = \frac{5\pi}{6} + 2\pi k$$

$$\boxed{x = \frac{\pi}{9} + \frac{4}{3}\pi k}$$

$$\boxed{x = \frac{5\pi}{9} + \frac{4}{3}\pi k}$$



$$0 \leq x \leq \frac{\pi}{9}$$

$$\frac{\pi}{9} < x < \frac{5\pi}{9}$$

$$\frac{5\pi}{9} \leq x \leq \frac{11\pi}{9}$$

$$\frac{13\pi}{9} \leq x \leq \frac{3\pi}{2}$$