

4.6
k6

$$2\sin^2 x - \sin x + \sin^3 x = 1$$

$$\sin^3 x - \sin x = 1 - 2\sin^2 x$$

$$2\sin x \cos 2x = \cos 2x$$

$$\cos 2x (2\sin x - 1) = 0$$

$$\downarrow$$

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

$$\boxed{x = \frac{\pi}{4} + \frac{\pi}{2} k}$$

$$\downarrow$$

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

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

4.6
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$$\log_{\cos 2x} (\cos x + \cos 3x) = 1$$

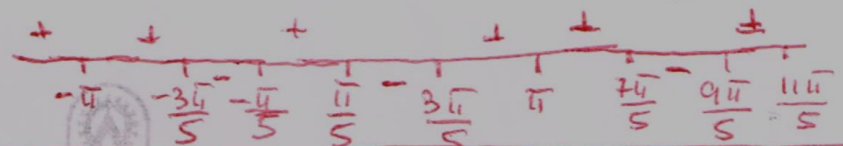
$$\frac{2\pi k - \frac{3\pi}{2} < 2x < \frac{\pi}{2} + 2\pi k}{x \neq 2\pi k}$$

$$\cos x + \cos 2x > 0$$

$$2 \cos 1.5x \cos 0.5x > 0$$

$$0.5x = \frac{\pi}{2} + \pi k \quad 2.5x = \frac{\pi}{2} + \pi k$$

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



אם $\cos x + \cos 3x > 0$ אז $\log_{\cos 2x} (\cos x + \cos 3x) = 1$ כאשר $\cos 2x > 0$ ו- $\cos 2x \neq 1$

$$\log_{\cos 2x} (\cos x + \cos 3x) = 1$$

$$\cos x + \cos 3x = \cos 2x$$

$$2 \cos 2x \cos x = \cos 2x$$

$$\cos 2x (2 \cos x - 1) = 0$$

$$\downarrow$$

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

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

$$\rightarrow$$

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

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

$$-\frac{\pi}{5} + 2\pi k < x < \frac{\pi}{5} + 2\pi k$$

