

2.73  
5

$$\sin^3 x + \cos^3 x = \frac{3}{4}$$

$$\sin 3x = \sin(2x+x) = \sin 2x \cos x + \cos 2x \sin x = 2\sin x \cos^2 x + (1-2\sin^2 x)\sin x =$$

$$= 2\sin x(1-\sin^2 x) + \sin x - 2\sin^3 x = 3\sin x - 4\sin^3 x$$

$$\cos 3x = \cos(2x+x) = \cos 2x \cos x - \sin 2x \sin x = (2\cos^2 x - 1)\cos x - 2\sin^2 x \cos x =$$

$$= 2\cos^3 x - \cos x - 2(1-\cos^2 x)\cos x = 4\cos^3 x - 3\cos x$$

$$\sin^3 x (3\sin x - 4\sin^3 x) + \cos^3 x (4\cos^3 x - 3\cos x) = \frac{3}{4}$$

$$3\sin^4 x - 4\sin^6 x + 4\cos^4 x - 3\cos^6 x = \frac{3}{4}$$

$$3\sin^4 x - \cos^6 x = \frac{3}{4} \quad /: \frac{3}{4}$$

$$4\sin^4 x \cos^2 x = 1$$

$$2\sin 2x \cos 2x = 1$$

$$\sin 4x = 1$$

$$4x = \frac{\pi}{2} + 2\pi k \rightarrow x = \frac{\pi}{8} + \frac{\pi k}{2}$$