

2.52
107

$$4(\sin t \cos^5 t + \cos t \sin^5 t) + \sin^3 2t = 1$$

$$4\sin t \cos t (\cos^4 t + \sin^4 t) + \sin^3 2t = 1$$

$$2\sin 2t [(\cos^2 t + \sin^2 t)^2 - 2\sin^2 t \cos^2 t] + \sin^3 2t = 1$$

$$2\sin 2t \left[1 - \frac{1}{2} \sin^2 2t \right] + \sin^3 2t = 1$$

$$2\sin 2t = 1$$

$$\sin 2t = \frac{1}{2} \rightarrow 2t = \frac{\pi}{6} + 2\pi k \rightarrow t = \frac{\pi}{12} + \pi k$$

$$2t = \pi - \frac{\pi}{6} + 2\pi k \rightarrow t = \frac{5\pi}{12} + \pi k$$