

$$8\cos^4 x = 11\cos 2x - 1$$

$$8(\cos^2 x)^2 = 11\cos 2x - 1$$

$$8\left(\frac{1+\cos 2x}{2}\right)^2 = 11\cos 2x - 1$$

$$t = \cos 2x$$

$$8\left(\frac{1+t}{2}\right)^2 = 11t - 1$$

$$8\left(\frac{1}{2} + \frac{t}{2}\right)^2 = 11t - 1$$

$$8\left(\frac{1}{4} + \frac{t}{2} + \frac{t^2}{4}\right) = 11t - 1$$

$$2 + 4t + 2t^2 = 11t - 1$$

$$2t^2 - 7t = -2 - 1$$

$$2t^2 - 7t = -3$$

$$2t^2 - 7t + 3 = 0$$

$$D = 49 - 24 = 25$$

$$x_1 = \frac{7+5}{4} = 3$$

$$x_2 = \frac{1}{2}$$

$$3 = \cos 2x - \text{no answer}$$

$$\frac{1}{2} = \cos 2x$$

$$2x = \frac{\pi}{3} + 2pk$$

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

$$x = \frac{\pi}{6} + pk$$

$$x = \frac{5\pi}{6} + pk$$