$$8\sin^4 x = 2\cos^2 x + 1$$

$$8\sin^4 x = 2(1-\sin^2 x) + 1$$

$$8\sin^4 x + 2\sin^2 x - 3 = 0$$

Пусть $\sin^2 x = t$

$$8t^2 + 2t - 3 = 0$$

$$t_{1,2} = \frac{-2 \pm \sqrt{4 + 4 \cdot 96}}{16} = \frac{-2 \pm 10}{16} =$$

$$= 0{,}5;\ \frac{-3}{4}$$

$$\sin^2 x = \frac{1}{2} \qquad \sin^2 x = \frac{-3}{4}$$

$$\sin x = \pm\frac{\sqrt{2}}{2} \qquad \varnothing$$

$$x_1 = (-1)^n \frac{\pi}{4} + \pi n$$

$$x_2 = (-1)^{n+1} \frac{\pi}{4} + \pi n$$

$$\boxed{x = \pm\frac{\pi}{4} + \pi n}$$