Zadatak 12. Ako je $\sin x + \cos x = \frac{1}{3}$, izračunaj:

1) $\sin^3 x + \cos^3 x$; **2)** $\sin^4 x + \cos^4 x$.

Rješenje. **1)** Nakon kvadriranja dane jednakosti imamo: $1+2\sin x\cdot\cos x=\frac{1}{9}$, odakle je $\sin x\cdot\cos x=-\frac{4}{9}$. Zatim,

$$\sin^3 + \cos^3 x = (\sin x + \cos x)\cdot(\sin^2 x - \sin x\cdot\cos x + \cos^2 x) = \frac{1}{3}\left(1+\frac{4}{9}\right) = \frac{13}{27};$$

2) $\sin^4 x + \cos^4 x = (\sin^2 x + \cos^2 x)^2 - 2\sin^2 x\cdot\cos^2 x = 1 - 2\cdot\frac{16}{81} = \frac{49}{81}$.