

**Zadatak 18.** Ako je  $f(\cos^2 x) = \operatorname{ctg}^2 x - \cos 2x$ , koliko je  $f(x)$ ?

*Rješenje.*

$$\begin{aligned} f(\cos^2 x) &= \operatorname{ctg}^2 x - \cos 2x = \frac{\cos^2 x}{\sin^2 x} - \cos^2 x + \sin^2 x \\ &= \frac{\cos^2 x - \cos^2 x \sin^2 x + \sin^4 x}{\sin^2 x} = \frac{\cos^2 x(1 - \sin^2 x) + (1 - \cos^2 x)}{1 - \cos^2 x} \\ &= \frac{2 \cos^4 x - 2 \cos^2 x + 1}{1 - \cos^2 x}; \\ f(x) &= \frac{2x^2 - 2x + 1}{1 - x}. \end{aligned}$$