**Zadatak 15.** Pojednostavi razlomak $\dfrac{2\sin\alpha-\sin 2\alpha}{2\sin\alpha+\sin 2\alpha}$ te izračunaj njegovu vrijednost ako je $\sin\dfrac{\alpha}{2}=\dfrac{1}{2}$.

***Rješenje.***

$$\frac{2\sin\alpha-\sin 2\alpha}{2\sin\alpha+\sin 2\alpha}=\frac{2\sin\alpha-2\sin\alpha\cos\alpha}{2\sin\alpha+2\sin\alpha\cos\alpha}=\frac{2\sin\alpha(1-\cos\alpha)}{2\sin\alpha(1+\cos\alpha)}$$

$$=\frac{\sin^2\frac{\alpha}{2}+\cos^2\frac{\alpha}{2}-\cos^2\frac{\alpha}{2}+\sin^2\frac{\alpha}{2}}{\sin^2\frac{\alpha}{2}+\cos^2\frac{\alpha}{2}+\cos^2\frac{\alpha}{2}-\sin^2\frac{\alpha}{2}}=\frac{2\sin^2\frac{\alpha}{2}}{2\cos^2\frac{\alpha}{2}}=\operatorname{tg}^2\frac{\alpha}{2};$$

$$=\frac{\sin^2\frac{\alpha}{2}}{\cos^2\frac{\alpha}{2}}=\frac{\sin^2\frac{\alpha}{2}}{1-\sin^2\frac{\alpha}{2}}=\left(\sin\frac{\alpha}{2}=\frac{1}{2}\right)=\frac{\frac{1}{4}}{1-\frac{1}{4}}=\frac{1}{3}.$$