Zadatak 3. Prikaži grafički funkciju:

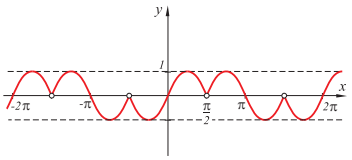
1) $f(x)=\dfrac{\sin x+\sin 3x}{\sqrt{2+2\cos 2x}}$;

2) $f(x)=\dfrac{\sin x-\sin 3x}{\sqrt{2-2\cos 2x}}$.

Rješenje. **1)** $f(x)=\dfrac{\sin x+\sin 3x}{\sqrt{2+2\cos 2x}}=\dfrac{2\sin\dfrac{x+3x}{2}\cos\dfrac{x-3x}{2}}{\sqrt{2+2\cos 2x}}=\dfrac{2\sin 2x\cos(-x)}{2\sqrt{\dfrac{1+\cos 2x}{2}}}=$

$\dfrac{\sin 2x\cos x}{\pm\cos x}=\pm\sin 2x$;

$$f(x)=\begin{cases}\sin 2x & x\in\left[-\dfrac{\pi}{2}+2k\pi,\dfrac{\pi}{2}+2k\pi\right]\\ -\sin 2x & x\in\left[\dfrac{\pi}{2}+2k\pi,\dfrac{3\pi}{2}+2k\pi\right]\end{cases}$$



2) $f(x)=\dfrac{\sin x-\sin 3x}{\sqrt{2-2\cos 2x}}=\dfrac{2\cos\dfrac{x+3x}{2}\sin\dfrac{x-3x}{2}}{2\sqrt{\dfrac{1-\cos 2x}{2}}}=\dfrac{\cos 2x(-\sin x)}{\pm\sin x}=$

$\mp\cos 2x$;

$$f(x)=\begin{cases}-\cos 2x & x\in[2k\pi,(2k+1)\pi]\\ \cos 2x & x\in[(2k+1)\pi,(2k+2)\pi]\end{cases}$$