

Zadatak 3. Provjeri da su sljedeće funkcije neparne:

1) $f(x) = \sin^3 x$;

2) $f(x) = \sin x \cdot \cos x$;

3) $f(x) = \frac{\sin x - \cos x}{\sin x + \cos x}$;

4) $\sin x + \sin 2x + \sin 3x$.

Rješenje.

1) $f(-x) = \sin^3(-x) = (\sin(-x))^3 = (-\sin x)^3 = -f(x)$ (neparna);

2) $f(-x) = \sin(-x) \cdot \cos(-x) = -\sin x \cdot \cos x = -f(x)$ (neparna);

3) $f(-x) = \frac{\sin(-x) - \cos(-x)}{\sin(-x) + \cos(-x)} = \frac{-\sin x - \cos x}{-\sin x + \cos x} = \frac{-(\sin x + \cos x)}{-(\sin x - \cos x)} = \frac{\sin x + \cos x}{\sin x - \cos x}$ (ni parna ni neparna);

4) $f(-x) = \sin(-x) + \sin(-2x) + \sin(-3x) = -\sin x - \sin 2x - \sin 3x = -(\sin x + \sin 2x + \sin 3x) = -f(x)$ (neparna).