

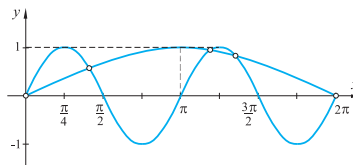
Zadatak 8. Rabeći grafove trigonometrijskih funkcija odgovori na pitanje koliko rješenja u intervalu $[0, 2\pi]$ imaju jednačbe:

- 1) $\sin 2x = \sin \frac{1}{2}x$; 2) $\cos \frac{1}{2}x = \cos 2x$;
 3) $\sin 2x = \cos 3x$; 4) $\sin 3x = \cos 2x$?

Rješenje.

1) $f_1(x) = \sin 2x$, $N_1 = 0$, $C_1 = 1$, $P_1 = \pi$;

$f_2(x) = \sin \frac{1}{2}x$, $N_2 = 0$, $C_2 = 1$, $P_2 = \frac{2\pi}{1} = 2\pi$;
 $\frac{2\pi}{2} = \pi$



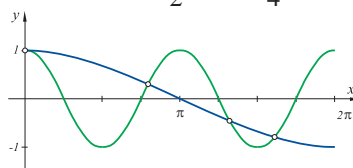
(5 rješenja)

2) $f_1(x) = \cos \frac{1}{2}x$, $C_1 = 1$, $P_1 = \frac{2\pi}{1} = 2\pi$;

$N_1: \cos \frac{1}{2}x = 0$, $\frac{1}{2}x = \frac{\pi}{2}$, $x = \pi$;

$f_2(x) = \cos 2x$, $C_2 = 1$, $P_2 = \frac{2\pi}{2} = \pi$;

$N_2: \cos 2x = 0$, $2x = \frac{\pi}{2}$, $x = \frac{\pi}{4}$;



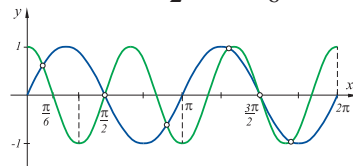
(4 rješenja)

3) $f_1(x) = \sin 2x$, $C_1 = 1$, $P_1 = \frac{2\pi}{2} = \pi$;

$N_1: \sin 2x = 0$, $2x = 0$, $x = 0$;

$f_2(x) = \cos 3x$, $C_2 = 1$, $P_2 = \frac{2\pi}{3}$;

$N_2: \cos 3x = 0$, $3x = \frac{\pi}{2}$, $x = \frac{\pi}{6}$;



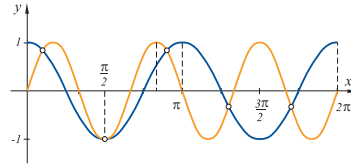
(6 rješenja)

4) $f_1(x) = \sin 3x$, $C_1 = 1$, $P_1 = \frac{2\pi}{3}$;

$N_1: \sin 3x = 0$, $3x = 0$, $x = 0$;

$f_2(x) = \cos 2x$, $C_2 = 1$, $P_2 = \frac{2\pi}{2} = \pi$;

$$N_2: \cos 2x = 0, 2x = \frac{\pi}{2}, x = \frac{\pi}{4};$$



(5 rješenja)