

Zadatak 15. Ako je $f(x) = \cos\left(\frac{\pi}{3}(1-x)\right)$, $g(x) = 2x - \frac{1}{2}$, koliko je $(f \circ g)(-33)$ i $(g \circ f)(-33)$?

Rješenje. $f(x) = \cos\left(\frac{\pi}{3}(1-x)\right)$, $g(x) = 2x - \frac{1}{2}$;

$$(f \circ g)(-33) = \cos\left[\frac{\pi}{3}\left(1 - \left(-2 \cdot 33 - \frac{1}{2}\right)\right)\right] = \cos\left[\frac{\pi}{3}\left(1 + \frac{133}{2}\right)\right]$$
$$= \cos\frac{135\pi}{6} = \cos\frac{\pi}{2} = 0;$$

$$(g \circ f)(-33) = 2 \cdot \cos\left(\frac{\pi}{3}(1+33)\right) - \frac{1}{2} = 2 \cdot \cos\frac{44\pi}{3} - \frac{1}{2}$$
$$= 2 \cdot \cos\frac{2\pi}{3} - \frac{1}{2} = -1 - \frac{1}{2} = -\frac{3}{2}.$$