

Zadatak 14. Ako je $f(x) = \sin\left(\frac{\pi}{2}(1-x)\right)$, $g(x) = -\frac{1}{2}x + 3$, koliko je $(f \circ g)(55)$ i $(g \circ f)(55)$?

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

$$g(x) = -\frac{1}{2}x + 3;$$

$$(f \circ g)(55) = \cos\left(\frac{\pi}{2}\left(-\frac{1}{2} \cdot 55 + 3\right)\right) = \cos\left(-\frac{49}{4}\pi\right) = \cos\left(-\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2};$$

$$(f \circ g)(55) = -\frac{1}{2} \cdot \cos\left(\frac{\pi}{2} \cdot 55\right) + 3 = -\frac{1}{2} \cdot \cos\left(\frac{\pi}{2}\right) + 3 = 3.$$