Zadatak 7. Za koje realne brojeve m postoji realan broj x tako da je $\cos x = \dfrac{2m-1}{m+2}$?

Rješenje. $\cos x = \dfrac{2m-1}{m+2} \implies \left|\dfrac{2m-1}{m+2}\right| \leqslant 1$

uvjet: $m+2 \neq 0$, $m \neq -2$

$$\frac{|2m-1|}{|m+2|} \leqslant 1 \quad \Big/ \cdot |m+2|$$

$$|2m-1| \leqslant |m+2|$$

	$-\infty$		-2		$1/2$		$+\infty$
		I.		**II.**		**III.**	
$2m-1$		$-$		$-$	0	$+$	
$m+2$		$-$	0	$+$		$+$	

I. $m \in \langle -\infty, -2\rangle$

$$-(2m-1) \leqslant -(m+2)$$
$$-2m+1 \leqslant -m-2$$
$$-m \leqslant -3 \ / \cdot (-1)$$
$$m \geqslant 3$$

$\implies$ nema rješenja

II. $m \in \left\langle -2, \dfrac{1}{2}\right\rangle$

$$-(2m-1) \leqslant m+2$$
$$-2m+1 \leqslant m+2$$
$$-3m \leqslant 1 \ / : (-3)$$
$$m \geqslant -\frac{1}{3}$$

$\implies m \in \left[-\dfrac{1}{3}, \dfrac{1}{2}\right\rangle$

III. $m \in \left[\dfrac{1}{2}, \infty\right\rangle$

$$2m-1 \leqslant m+2$$
$$m \leqslant 3$$

$\implies m \in \left[\dfrac{1}{2}, 3\right]$

unija rješenja **I.**, **II.** i **III.** :

$$\forall n \in \left[-\frac{1}{3}, 3\right]$$