Zadatak 14. Odredi jednadžbu pravca simetričnog pravcu $y = 7x + 2$ s obzirom na pravac $3x - 4y + 8 = 0$.

Rješenje.

$$p \ \ldots \ y = 7x + 2$$

$$q \ \ldots \ 3x - 4y + 8 = 0 \implies y = \frac{3}{4}x + 2$$

$$p' \ \ldots \ y = kx + l$$

$$\operatorname{tg}(p, q) = \operatorname{tg}(r, q)$$

$$\left| \frac{7 - \frac{3}{4}}{1 + 7 \cdot \frac{3}{4}} \right| = \left| \frac{\frac{3}{4} - k}{1 + \frac{3}{4} \cdot k} \right|$$

$$\left| \frac{\frac{25}{4}}{\frac{25}{4}} \right| = \left| \frac{\frac{3-4k}{4}}{\frac{4+3k}{4}} \right|$$

$$1 = \frac{|3 - 4k|}{|4 + 3k|} \quad / \cdot |4 + 3k|$$

$$|4 + 3k| = |3 - 4k|$$

$$4 + 3k < 0 \implies k < -\frac{4}{3}$$

$$3 - 4k < 0 \implies k > \frac{3}{4}$$

	$\langle -\infty, -\frac{4}{3} \rangle$	$\langle -\frac{4}{3}, \frac{3}{4} \rangle$	$\langle \frac{3}{4}, \infty \rangle$
$4 + 3k$	$-$	$+$	$+$
$3 - 4k$	$+$	$+$	$-$

$\langle -\infty, -\frac{4}{3} \rangle \cup \langle \frac{3}{4}, \infty \rangle$

$$4 + 3k = -3 + 4k$$

$k = 7$ (koeficijent pravca p)

$\langle -\frac{4}{3}, \frac{3}{4} \rangle$

$$4 + 3k = 3 - 4k$$

$$7k = -1$$

$$k = -\frac{1}{7}$$

$$p \cap p' = \{T\} \implies 7x + 2 = \frac{3}{4}x + 2 \quad / \cdot 4$$

$$28x + 8 = 3x + 8 \quad / \cdot 4$$

$$x = 0 \implies T(0, 2)$$

Pravac p' prolazi točkom T i ima koeficijent smjera $k = -\frac{1}{7}$:

$$p' \ \ldots \ y - 2 = -\frac{1}{7}(x - 0) \quad / \cdot 7$$

$$7y - 14 = -x$$

$$x + 7y - 14 = 0$$