Zadatak 19. Odredi realni broj a tako da sjecište pravaca $ax+2y-1=0$ i $2x+ay+3=0$ pripada pravcu $x-y=3$.

Rješenje.

$$\begin{aligned}
p &\ \ldots\ ax+2y-1=0\\
q &\ \ldots\ 2x+ay+3=0\\
r &\ \ldots\ \underline{y=x-3 \implies T(x_0,x_0-3)}\\
a\cap b &\quad ax_0+2(x_0-3)=0\\
&\quad \underline{2x_0+a(x_0-3)+3=0}\\
&\quad ax_0+2x_0-6=0\\
&\quad \underline{2x_0+ax_0-3a+3=0}\\
\text{oduzimanjem jednakosti:} &\quad -6+3a-1-3=0\\
&\quad 3a=10\\
&\quad \boxed{a=\frac{10}{3}}
\end{aligned}$$

Uvrstimo dobivenu vrijednost za a u jednadžbe pravaca p i q:

$$\begin{aligned}
p &\ \ldots\ \frac{10}{3}\cdot x+2y-1=0 \quad /\cdot 3\\
q &\ \ldots\ \underline{2x+\frac{10}{3}\cdot y+3=0 \quad /\cdot 3}\\
&\quad 10x+6y-3=0 \quad /\cdot 6\\
&\quad \underline{6x+10y+9=0 \quad /\cdot(-10)}\\
\text{zbrajanjem dobijemo:} &\quad -64y-108=0\\
&\quad -64y=108\\
&\quad \boxed{y=-\frac{27}{16}}\\
&\quad 10x+6\cdot\left(-\frac{27}{16}\right)-3=0\\
&\quad 10x=3+\frac{81}{8}\\
&\quad \boxed{x=\frac{21}{16}} \implies \boxed{T\left(\frac{21}{16},-\frac{27}{16}\right)}
\end{aligned}$$