Zadatak 40. Točkom $T(-2,3)$ položi dva međusobno okomita pravca koji će s osi apscisa tvoriti trokut površine 9.

Rješenje.

$$T(-2,3)$$
$$\underline{P=9}$$
$$P_{T_1T_2T}=\frac{1}{2}|x_1(y_2-y_3)+x_2(y_3-y_1)+x_3(y_1-y_2)|$$
$$9=\frac{1}{2}|x_1(0-3)+x_2(3-0)+(-2)\cdot(0-0)|$$
$$9=\frac{1}{2}|-3x_1+3x_2|$$
$$18=3|-x_1+x_2|$$
$$|-x_1+x_2|=6$$
$$p\perp q \implies k_p=-\frac{1}{k_q}$$
$$p \ \dots\ y-0=\frac{3-0}{-2-x_1}(x-x_1)$$
$$y=\frac{3}{-2-x_1}x-\frac{3x_1}{-2-x_1} \implies k_p=\frac{3}{-2-x_1}$$
$$q \ \dots\ y-0=\frac{3-0}{-2-x_2}(x-x_2)$$
$$y=\frac{3}{-2-x_2}x-\frac{3x_2}{-2-x_2} \implies k_q=\frac{3}{-2-x_2}$$
$$\frac{3}{-2-x_1}=-\frac{1}{\frac{3}{-2-x_2}}$$
$$\frac{3}{-2-x_1}=\frac{2+x_2}{3} \quad /\cdot 3(-2-x_1)$$
$$9=(2+x_2)(-2-x_1)$$
$$-4-2x_1-2x_2-x_1x_2=9$$
$$\left.\begin{aligned}x_1x_2+2x_1+2x_2+13=0\\ |-x_1+x_2|=6\end{aligned}\right\}$$

1)
$$-x_1+x_2=-6 \implies x_2=x_1-6$$
$$x_1(x_1-6)+2x_1+2(x_1-6)+13=0$$
$$x_1^2-6x_1+2x_1+2x_1-12+13=0$$
$$x_1^2-2x_1+1=0$$
$$(x_1-1)^2=0 \quad /\sqrt{\ }$$
$$x_1-1=0$$
$$x_1=1 \implies T_1(1,0)$$
$$x_2=x_1-6=1-6=-5 \implies T_2(-5,0)$$

2) $-x_1 + x_2 = 6 \implies x_2 = x_1 + 6$

$x_1(x_1+6) + 2x_1 + 2(x_1+6) + 13 = 0$

$x_1^2 + 6x_1 + 2x_1 + 2x_1 + 12 + 13 = 0$

$x_1^2 + 10x_1 + 25 = 0$

$(x_1+5)^2 = 0 \quad /\sqrt{\ }$

$x_1 + 5 = 0$

$x_1 = -5 \implies \boxed{T_3(-5,0)}$

$x_2 = x_1 + 6 = -5 + 6 = 1 \implies \boxed{T_4(1,0)}$

Dobili smo iste točke i pod **1)** i pod **2)** $(T_1 = T_4,\ \ T_2 = T_3)$ pa imamo:

$$\boxed{p} = T_1T \ \ldots\ y = \frac{3}{-2-1}x - \frac{3\cdot 1}{-2-1}$$

$$\boxed{y = -x + 1}$$

$$\boxed{q} = T_2T \ \ldots\ y = \frac{3}{-2+5}x - \frac{3\cdot(-5)}{-2+5}$$

$$\boxed{y = x + 5}$$