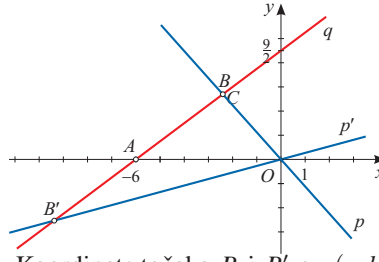


**Zadatak 14.** Ishodištem koordinatnog sustava položi pravac koji će s pravcem  $3x - 4y + 18 = 0$  i osi apscisa zatvarati trokut površine 9.

*Rješenje.*



$$\begin{aligned} q \dots 3x - 4y + 18 &= 0 \\ \implies -4y &= -3x - 18 \quad / : (-4) \\ \implies y &= \frac{3}{4}x + \frac{9}{2} \end{aligned}$$

$$\begin{aligned} p \dots y &= kx \\ P = 9 &= P_{\triangle AOB} = P_{\triangle AOB'} \end{aligned}$$

Koordinate točkaka  $B$  i  $B'$  su  $(x, kx)$  pa imamo:

$$kx = \frac{3}{4}x + \frac{9}{2}$$

$$kx - \frac{3}{4}x = \frac{9}{2}$$

$$x\left(k - \frac{3}{4}\right) = \frac{9}{2} \tag{1}$$

$$P_{\triangle} = \frac{1}{2}|x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)|$$

$$\triangle AOB \quad 9 = \frac{1}{2}|-6(0 - kx) + 0 \cdot (kx - 0) + x(0 - 0)| \quad / \cdot 2$$

$$\triangle AOB' \quad 9 = \frac{1}{2}|-6(0 - kx) + 0 \cdot (kx - 0) + x(0 - 0)|$$

$$18 = |6kx| \quad / : 6$$

$$|kx| = 3$$

$$|k| = \frac{3}{|x|}$$

uvrstimo u (1):

$$x\left(\frac{3}{|x|} - \frac{3}{4}\right) = \frac{9}{2}$$

$$\frac{3x}{|x|} - \frac{3}{4}x = \frac{9}{2} \quad / \cdot 4|x|$$

$$12x - 3x|x| = 18|x|$$

$$x < 0$$

$$12x + 3x^2 = -18x$$

$$3x^2 + 30x = 0$$

$$3x(x + 10) = 0$$

$$x = -10$$

$$|k| = \frac{3}{10} \implies \text{iz slike} \implies k = \frac{3}{10}$$

$$y = \frac{3}{10}x$$

$$x > 0$$

$$12x - 3x^2 = 18x$$

$$-3x^2 - 6x = 0$$

$$-x(x + 2) = 0$$

$$x = -2$$

$$|k| = \frac{3}{2} \implies \text{iz slike} \implies k = -\frac{3}{2}$$

$$y = -\frac{3}{2}x$$