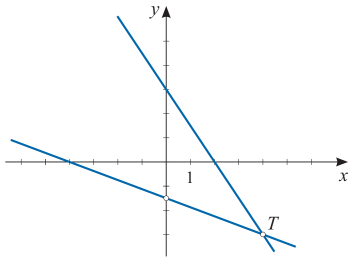
Zadatak 16. Točkom $T(4,-3)$ položi pravac tako da površina trokuta što ga taj pravac tvori s koordinatnim osima bude jednaka 3.

Rješenje. $T(4,-3)$



$$P=\frac{|m\cdot n|}{2}$$
$$3=\frac{|m\cdot n|}{2}\quad /\cdot 2$$
$$|m\cdot n|=6$$
$$|n|=\frac{6}{|m|}$$

1) $n>0 \implies n=\frac{6}{|m|}$

$$\frac{4}{m}+\frac{-3}{\frac{6}{|m|}}=1$$
$$\frac{4}{m}-\frac{|m|}{2}=1\quad /\cdot 2m$$
$$8-m\cdot|m|=2m$$
$$m\cdot|m|+2m-8=0 \qquad (1)$$

a) $m<0$

$$(1)\implies -m^2+2m-8=0$$
$$m^2-2m+8=0$$
$$m_{1,2}=\frac{2\pm\sqrt{4-32}}{2}$$
(nema rješenja)

b) $m>0$

$$(1)\implies m^2+2m-8=0$$
$$m_{1,2}=\frac{-2\pm\sqrt{4+32}}{2}=\frac{-2\pm 6}{2}$$
$$m_1=\frac{-2-6}{2}\ \text{(nije rješenje)}$$
$$m_2=\frac{-2+6}{2}=2\implies n=3$$
$$p\ \ldots\ \frac{x}{2}+\frac{y}{3}=1,\qquad 3x+2y-6=0$$

2) $n<0 \implies n=-\frac{6}{|m|}$

$$\frac{4}{m}+\frac{-3}{-\frac{6}{|m|}}=1$$
$$\frac{4}{m}+\frac{|m|}{2}=1\quad /\cdot 2m$$
$$8+m\cdot|m|=2m$$
$$m\cdot|m|-2m+8=0 \qquad (2)$$

a) $m < 0$

$$(2) \Longrightarrow -m^2 - 2m + 8 = 0$$
$$m^2 + 2m - 8 = 0$$
$$m_{1,2} = \frac{-2 \pm \sqrt{4+32}}{2} = \frac{-2 \pm 6}{2}$$
$$m_1 = \frac{-2+6}{2} = 2 \text{ (nije rješenje } (m < 0))$$
$$m_2 = \frac{-2-6}{2} = -4 \Longrightarrow n = -\frac{6}{4} = -\frac{3}{2}$$
$$p \ \dots \ \frac{x}{-4} + \frac{y}{-\frac{3}{2}} = 1, \quad 3x + 8y + 12 = 0$$

b) $m > 0$

$$(2) \Longrightarrow m^2 - 2m + 8 = 0$$
$$m_{1,2} = \frac{2 \pm \sqrt{4-32}}{2}$$
(nema rješenja)

Dva su rješenja: $3x + 2y - 6 = 0$ ili $3x + 8y + 12 = 0$.