▌Rješenja zadataka 10.4

Zadatak 1.   Odredi točke u kojima pravac $x + 2y - 7 = 0$ siječe elipsu $x^2 + 4y^2 = 25$.

Rješenje.

$$p \ \ldots \ x + 2y - 7 = 0 \implies x = 7 - 2y$$
$$E \ \ldots \ x^2 + 4y^2 = 25$$
$$p \cap E \ \ldots \ (7 - 2y)^2 + 4y^2 = 25$$
$$4y^2 - 28y + 49 + 4y^2 + 4y^2 - 25 = 0$$
$$8y^2 - 28y + 24 = 0 \quad / : 4$$
$$2y^2 - 7y + 6 = 0$$
$$y_{1,2} = \frac{7 \pm \sqrt{49 - 48}}{4} = \frac{7 \pm 1}{4}$$
$$y_1 = \frac{3}{2}, \quad x_1 = 7 - 2 \cdot \frac{3}{2} = 4 \implies \boxed{T_1\left(4, \frac{3}{2}\right)}$$
$$y_2 = 2, \quad x_1 = 7 - 2 \cdot 2 = 3 \implies \boxed{T_1(2, 3)}$$