Zadatak 30. Odredi točku simetričnu točki $T(-1,5)$ s obzirom na pravac $3x+2y+6=0$.

Rješenje.

$$T(-1,5)$$

$$p \ \ldots \ 3x+2y+6=0 \implies y=-\frac{3}{2}x-3$$

$$|\overline{T'Q}| = |\overline{QT}|$$

$$q \perp p \implies k_q = -\frac{1}{k_p} = -\frac{1}{-\frac{3}{2}} = \frac{2}{3}$$

$$\{T\} \in q \implies y-5=\frac{2}{3}(x+1) \quad / \cdot 3$$

$$3y-15=2x+2$$

$$2x-3y+17=0 \implies y=\frac{2}{3}x+\frac{17}{3}$$

$$\{Q\} = p \cap q \ \ldots \ -\frac{3}{2}x-3=\frac{3}{2}x+\frac{17}{3} \quad / \cdot 6$$

$$-9x-18=4x+34$$

$$13x=-52$$

$$x=-4$$

$$y=-\frac{3}{2}\cdot(-4)-3=6-3$$

$$y=3 \implies Q(-4,3)$$

Q je polovište od $\overline{TT'}$ pa vrijedi:

$$x_Q=\frac{x_T+x_{T'}}{2} \quad / \cdot 2$$

$$y_Q=\frac{y_T+y_{T'}}{2} \quad / \cdot 2$$

$$2\cdot(-4)=-1+x_{T'}$$

$$2\cdot 3=5+y_{T'}$$

$$x_{T'}=-8+1$$

$$y_{T'}=6-5$$

$$x_{T'}=-7$$

$$y_{T'}=1 \implies T'(-7,1)$$