Zadatak 15. Kružnica prolazi točkom $T(5,1)$ i dira pravce $x-2y+6=0$ i $x-2y-4=0$. Kako glasi jednadžba te kružnice?

Rješenje. $y=\frac{1}{2}x+3,\ \frac{1}{2}x-2$

$$r^2\left(1+\frac{1}{4}\right)=\left(q-\frac{1}{2}p-3\right)^2$$
$$r^2\left(1+\frac{1}{4}\right)=\left(q-\frac{1}{2}p+2\right)^2$$
$$r^2=(5-p)^2+(1-q)^2$$

$$0=\left(q-\frac{1}{2}p-3\right)^2-\left(q-\frac{1}{2}p+2\right)^2$$
$$0=\left(q-\frac{1}{2}p-3-q+\frac{1}{2}p-2\right)\left(q-\frac{1}{2}p-3+q-\frac{1}{2}p+2\right)$$
$$0=-5(2q-p-1)\implies p=2q-1$$

$$\frac{5}{4}r^2=\left(q-q+\frac{1}{2}-3\right)$$
$$\frac{5}{4}r^2=\left(-\frac{5}{2}\right)^2$$
$$r^2=5$$

$$5=(5-2q+1)^2+(1-q)^2$$
$$5=36-24q+4q^2+1-2q+q^2$$
$$5q^2-26q+32=0$$
$$q_{1,2}=\frac{26\pm\sqrt{676-640}}{10}$$
$$q_1=2,\quad p_1=3$$
$$q_2=\frac{16}{5},\quad p_2=\frac{27}{5}$$
$$(x-3)^2+(y-2)^2=5,$$
$$\left(x-\frac{27}{5}\right)^2+\left(y-\frac{16}{5}\right)^2=5.$$