

Zadatak 18. Kružnica prolazi točkom $T(1, -1)$ i dira pravce $2x+y+4=0$ i $2x+y-6=0$. Kako glasi njezina jednažba?

Rješenje.

$$y = -2x - 4, \quad y = -2x + 6$$

$$r^2(1+4) = (q+2p+4)^2$$

$$r^2(1+4) = (q+2p-6)^2$$

$$r^2 = (1-p)^2 + (-1-q)^2$$

$$0 = (q+2p+4)^2 - (q+2p-6)^2$$

$$r^2 = (1-p)^2 + (-1-q)^2$$

$$0 = (q+2p+4 - q - 2p + 6)(q+2p+4 + q + 2p - 6)$$

$$r^2 = (1-p)^2 + (-1-q)^2$$

$$0 = 10(2q+4p-2) \implies q = -2p+1$$

$$r^2 = (1-p)^2 + (-1-q)^2$$

$$5r^2 = (-2p+1+2p+4)^2$$

$$r^2 = 5$$

$$5 = (1-p)^2 + (-1+2p-1)^2$$

$$5 = 1 - 2p + p^2 + 4p^2 - 8p + 4$$

$$5 = 5p^2 - 10p + 5$$

$$p(p-2) = 0$$

$$p_1 = 0, \quad p_2 = 2$$

$$q_1 = 1, \quad q_2 = -3$$

$$x^2 + (y-1)^2 = 5,$$

$$(x-2)^2 + (y+3)^2 = 5.$$