

Zadatak 23. Odredi jednadžbu pravca koji prolazi točkom $T(2, -1)$ te s pravcima $2x - y + 5 = 0$ i $3x + 6y - 1 = 0$ zatvara jednakokračan trokut.

Rješenje.

$$T(2, -1)$$

$$p \dots 2x - y + 5 = 0 \implies y = 2x + 5$$

$$q \dots 3x + 6y - 1 = 0 \implies y = -\frac{1}{2}x + \frac{1}{6}$$

Simetrala kuta $\sphericalangle(p, q)$

$$\frac{|2x - y + 5|}{\sqrt{4 + 1}} = \frac{|3x + 6y - 1|}{\sqrt{9 + 36}}$$

$$\frac{|2x - y + 5|}{\sqrt{5}} = \frac{|3x + 6y - 1|}{3\sqrt{5}} \quad / \cdot 3\sqrt{5}$$

$$3|2x - y + 5| = |3x + 6y - 1|$$

$$3(2x - y + 5) = \pm(3x + 6y - 1)$$

$$6x - 3y + 15 = \pm(3x + 6y - 1)$$

$$1) \quad 6x - 3y + 15 = 3x + 6y - 1$$

$$2) \quad 6x - 3y + 15 = -3x - 6y + 1$$

$$3x - 9y + 16 = 0 \dots s_1$$

$$9x + 3y + 14 = 0 \dots s_2$$

$$\implies y = \frac{1}{3}x + \frac{16}{9}$$

$$\implies y = -3x - \frac{14}{3}$$

Tražimo pravce r_1, r_2 okomite na pravce s_1, s_2 koji prolaze točkom T :

$$k_{r_1} = -\frac{1}{k_{s_1}} = -3$$

$$k_{r_2} = -\frac{1}{k_{s_2}} = \frac{1}{3}$$

$$y + 1 = -3(x - 2)$$

$$y + 1 = \frac{1}{3}(x - 2)$$

$$y + 1 = -3x + 6$$

$$y + 1 = \frac{1}{3}x - \frac{2}{3} \quad / \cdot 3$$

$$3x + y - 5 = 0 \dots r_1$$

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

$$x - 3y - 5 = 0 \dots r_2$$