

Zadatak 31. Koliki kut zatvaraju radijvektori točke $T(3, 4)$ elipse $4x^2 + 9y^2 = 180$?

Rješenje.

$$T(3, 4)$$

$$4x^2 + 9y^2 = 180 \quad / : 180$$

$$\frac{x^2}{45} + \frac{y^2}{20} = 1$$

$$e^2 = a^2 - b^2 = 45 - 20 = 25 \implies e = 5$$

$$F_1(-5, 0), \quad F_2(5, 0)$$

Izračunajmo koeficijent pravca F_1T :

$$F_1(-5, 0)$$

$$T(3, 4)$$

$$k_1 = \frac{3 + 5}{4 - 0} = 2$$

Izračunajmo još koeficijent pravca F_2T :

$$F_2(-5, 0)$$

$$T(3, 4)$$

$$k_2 = \frac{3 - 5}{4 - 0} = -\frac{1}{2} \implies k_2 = -\frac{1}{k_1}$$

Pravci su okomiti ($r_1 \perp r_2$) $\implies \alpha = 90^\circ$.