

Zadatak 33. Paraboli $y^2 = 2px$ upisan je jednakokračan pravokutni trokut s hipotenuzom duljine 8. Napiši jednadžbu parabole.

Rješenje.

$$P \dots y^2 = 2px$$

$$C(0, 0), B(x_0, y_0), A(x_0, -y_0)$$

$$B, C \in P \implies C(0, 0), B(x_0, \sqrt{2px_0}), A(x_0, -\sqrt{2px_0})$$

$$2x_0 = 8 \implies x_0 = 4$$

$$\implies C(0, 0), B(\underbrace{4}_{x_0}, \underbrace{\sqrt{8p}}_{y_0}), A(4, -\sqrt{8p})$$

Trokut BCD je jednakokračan pa je $x_0 = y_0$:

$$x_0 = y_0$$

$$4 = \sqrt{8p} \quad /^2$$

$$16 = 8p \implies p = 2$$

$$P \dots y^2 = 4x$$

