

Zadatak 25. Hiperbola $b^2x^2 - a^2y^2 = a^2b^2$ prolazi točkom $A(3, 1)$, a jedna njezina asimptota je pravac $x + y = 0$. Napiši jednadžbu hiperbole.

Rješenje.

$$A(3, 1)$$

$$x + y = 0, \quad y = -x \quad (\text{asimptota } y = \pm \frac{b}{a}x)$$

$$\implies \frac{b}{a} = 1, \quad b = a$$

$$A(3, 1) \in H \quad \dots \quad 9a^2 - a^2 = a^2 \cdot a^2$$

$$8a^2 = a^4 \quad / : a^2$$

$$a^2 = b^2 = 8$$

$$H \quad \dots \quad \frac{x^2}{8} - \frac{y^2}{8} = 1 \quad / \cdot 8$$

$$x^2 - y^2 = 8$$