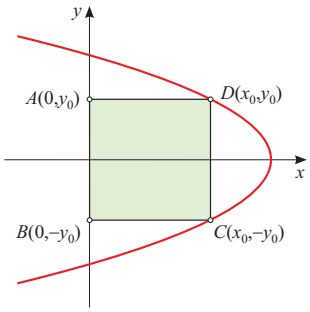
Zadatak 59. U lik omeđen parabolom $y^2 = -x + 3$ i osi ordinata upisan je kvadrat kojemu su dva vrha na osi ordinata, a dva na paraboli. Kolika je površina tog kvadrata?

Rješenje.

$P \ \ldots \ y^2 = -(x-3) \implies T(3,0)$

$p \ \ldots \ x = 0$



$A(0, y_0)$

$B(0, -y_0)$

$C(x_0, -y_0)$

$D(x_0, y_0)$

$D \in P \implies y_0^2 = -x_0 + 3$

$d(A,B) = d(A,D)$

$2y_0 = x_0 \quad /^2$

$4y_0^2 = x_0^2$

$4(-x_0 + 3) = x_0^2$

$x_0^2 + 4x_0 - 12 = 0$

$$(x_0)_{1,2} = \frac{-4 \pm \sqrt{16+48}}{2} = \frac{-4 \pm 8}{2}$$

$(x_0)_1 = -6$ (nije rješenje)

$x_0 = 2$

$P = x_0^2 = 4$