

Zadatak 6. Odredi jednadžbu tangente na parabolu $y = x^2 + 2x - 3$ u točki s apscisom $x = 1$.

Rješenje. $y = x^2 + 2x - 3$, $T(1, y)$;

$$y(1) = 1 + 2 - 3 = 0 \implies T(1, 0)$$

$$k = \lim_{\Delta x \rightarrow 0} \frac{1}{\Delta x} [f(1 + \Delta x) - f(1)] = \lim_{\Delta x \rightarrow 0} \frac{1}{\Delta x} [(1 + \Delta x)^2 + 2(1 + \Delta x) - 3 - 0]$$

$$= \lim_{\Delta x \rightarrow 0} \frac{1}{\Delta x} (1 + 2\Delta x + \Delta x^2 + 2 + 2\Delta x - 3) = \lim_{\Delta x \rightarrow 0} (\Delta x + 4) = 4$$

$$y = kx + l \implies 0 = 4 \cdot 1 + l \implies l = -4 \implies y = 4x - 4.$$