Tečna ke grafu + normála ke tečně

$f: y = -x^2 - 6x + 4 \quad D_f = \mathbb{R}$

$f'(x) = -2x - 6$

$-2x - 6 = 0$

$-2x = 6$

$x = -3$

$y = -(-3)^2 - 6 \cdot (-3) + 4$

$y = 13$

$V[-3; 13]$

Tečna ke grafu s bodem dotyku $T[-2; ?]$:

$t: y = kx + q \quad [x_0; y_0]$

$k = f'(x_0)$

$q \in \mathbb{R}$

$f'(x_0) = f'(-2) = -2 \cdot (-2) - 6 = -2$

$\Rightarrow k = -2$

$y_0 = -x_0^2 - 6 \cdot x_0 + 4$

$y_0 = -(-2)^2 - 6 \cdot (-2) + 4$

$y_0 = 12 \qquad \Rightarrow T[-2; 12]$

$y = kx + q$

$12 = (-2) \cdot (-2) + q$

$q = 8$

$\Rightarrow y = -2x + 8$

normála:

$y = -2x + 8 \qquad [-2; 12]$

$2x + y - 8 = 0$

$\vec{n_1} = (2; 1)$

$\Downarrow$

$\vec{n_n} = (-1; 2)$

$-x + 2y + c = 0$

$-(-2) + 2 \cdot 12 + c = 0$

$c = -26$

$-x + 2y - 26 = 0$