

1.

$$x^2 + 4y^2 + 6x + 8y + 9 = 0$$

$$x^2 + 6x + 9 - 9 + 4 \cdot (y^2 + 2y + 1) - 4 + 9 = 0$$

$$(x+3)^2 + 4 \cdot (y+1)^2 = 4 \quad | :4$$

$$\left| \frac{(x+3)^2}{4} + (y+1)^2 = 1 \right|$$

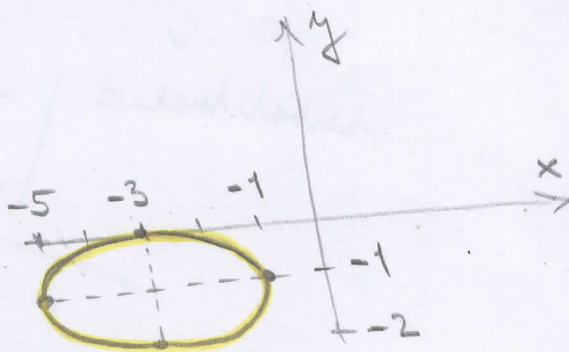
elipsa se středem $[-3; -1]$

Δ hlavní poloosou 2

a vedlejší poloosou 1

parametrizace

$$\left| \begin{array}{l} x = 2 \cos t - 3 \\ y = \sin t - 1 \\ t \in \langle 0, 2\pi \rangle \end{array} \right|$$



2.

$$m: \begin{array}{l} x(t) = t^2 - 1 \\ y(t) = t - 3 \end{array}$$

$$t \in \langle -1, 2 \rangle$$

$$\begin{array}{l} x'(t) = 2t \\ y'(t) = 1 \end{array}$$

$$\begin{array}{l} x'(1) = 2 \\ y'(1) = 1 \end{array}$$

tečný vektor odpovídající $t=1$: $\vec{u} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$

$$\|\vec{u}\| = \sqrt{2^2 + 1^2} = \sqrt{5}$$

$$\begin{array}{l} x = t^2 - 1 \\ y = t - 3 \end{array} \quad \leftarrow \text{dosazení} \quad \Leftrightarrow t = y + 3$$

$$\left| x = (y+3)^2 - 1 \right|$$

$$x = (y+3-1)(y+3+1)$$

$$x = (y+2)(y+4)$$

