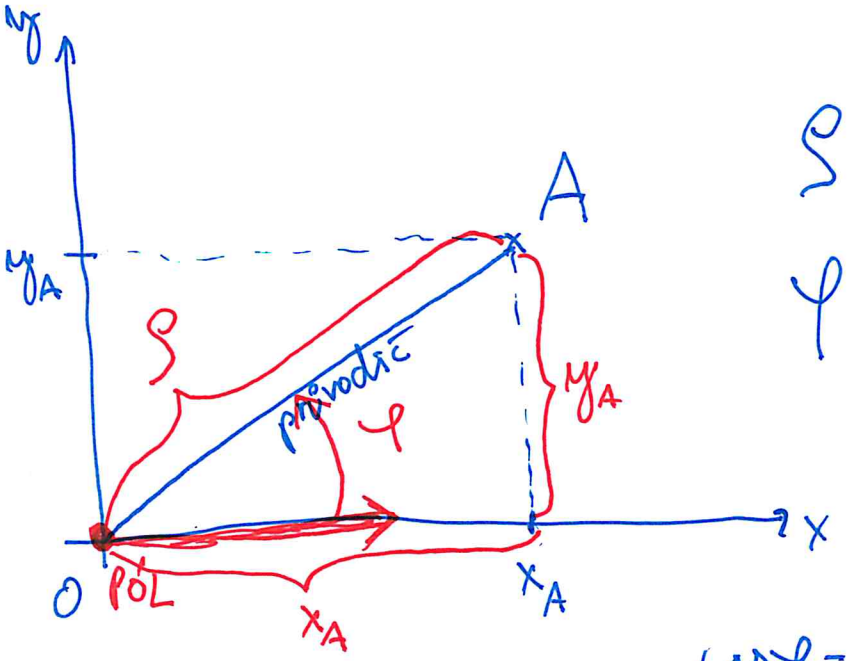
Obrazce v polárních souřadnicích



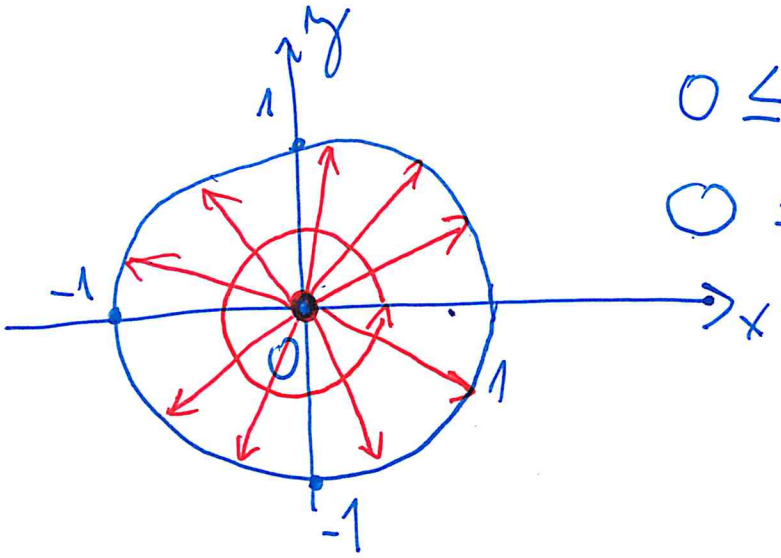
ϱ - vzdálenost bodu od počátku ($\varrho \geq 0$)

φ - orientovaný úhel od hlodné poloosy x k průvodiči

$$\cos\varphi = \frac{x_A}{\varrho} \rightarrow \boxed{x = \varrho\cos\varphi}$$

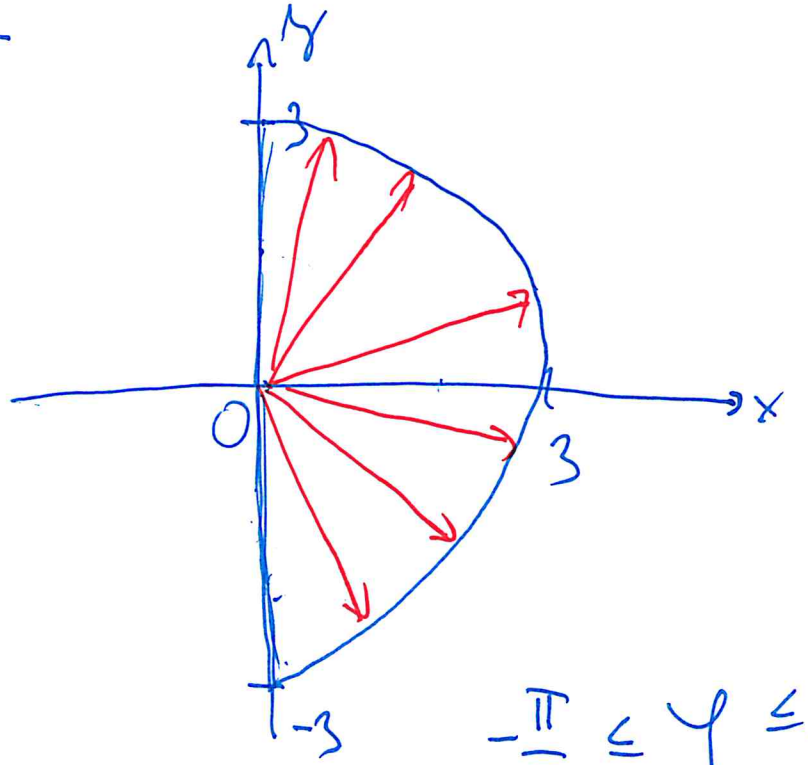
$$\sin\varphi = \frac{y_A}{\varrho} \qquad \boxed{y = \varrho\sin\varphi}$$

popis obrazců v polárních souřadnicích



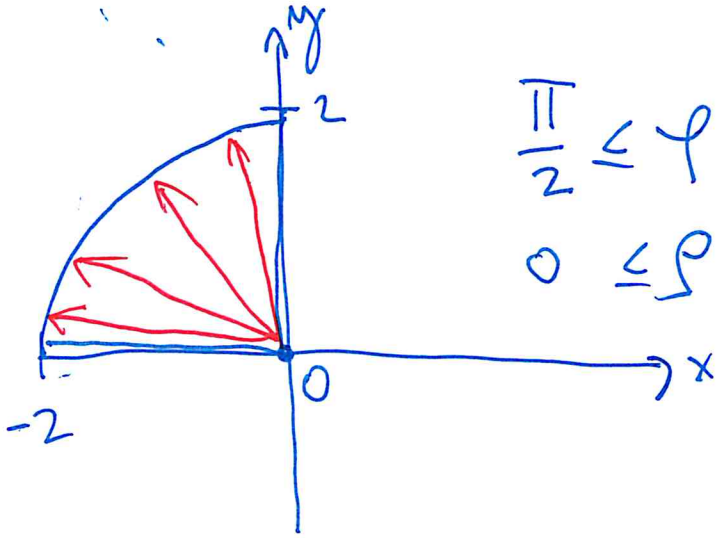
$$0 \le \varphi \le 2\pi$$

$$0 \le \rho \le 1$$



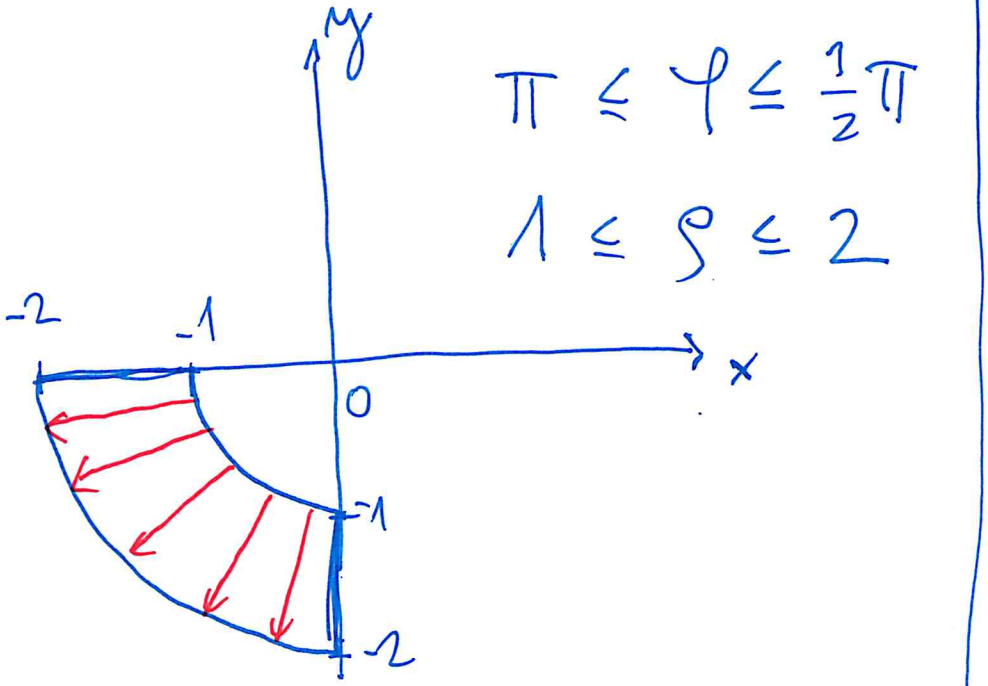
$$-\frac{\pi}{2} \le \varphi \le \frac{\pi}{2}$$

$$0 \le \rho \le 3$$



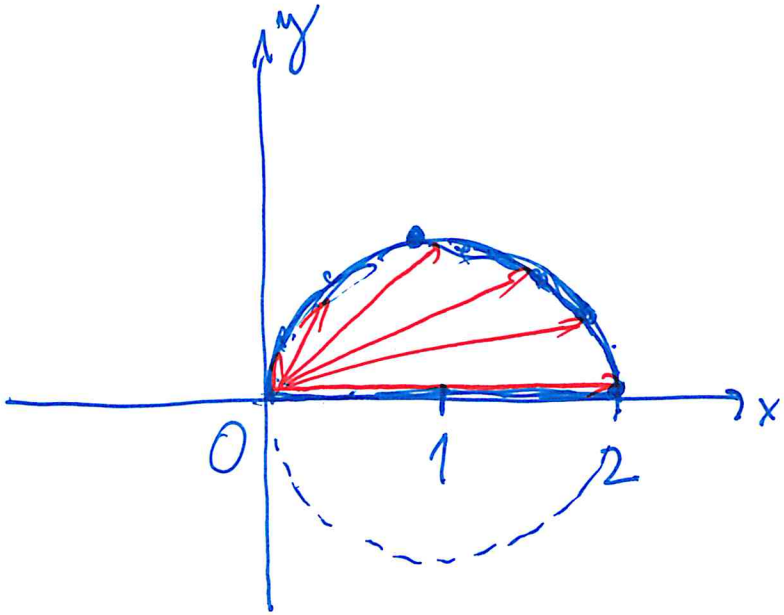
$$\frac{\pi}{2} \le \varphi \le \pi$$

$$0 \le \rho \le 2$$



$$\pi \le \varphi \le \frac{1}{2}\pi$$

$$1 \le \varrho \le 2$$



$$(x-1)^2 + y^2 = 1$$

$$x^2 - 2x + 1 + y^2 = 1 \quad 0$$

$x = \varrho\cos\varphi$

$y = \varrho\sin\varphi$

$$\varrho^2\cos^2\varphi - 2\varrho\cos\varphi + \varrho^2\sin^2\varphi = 0$$

$$\varrho^2(\underbrace{\cos^2\varphi + \sin^2\varphi}_{1}) - 2\varrho\cos\varphi = 0$$

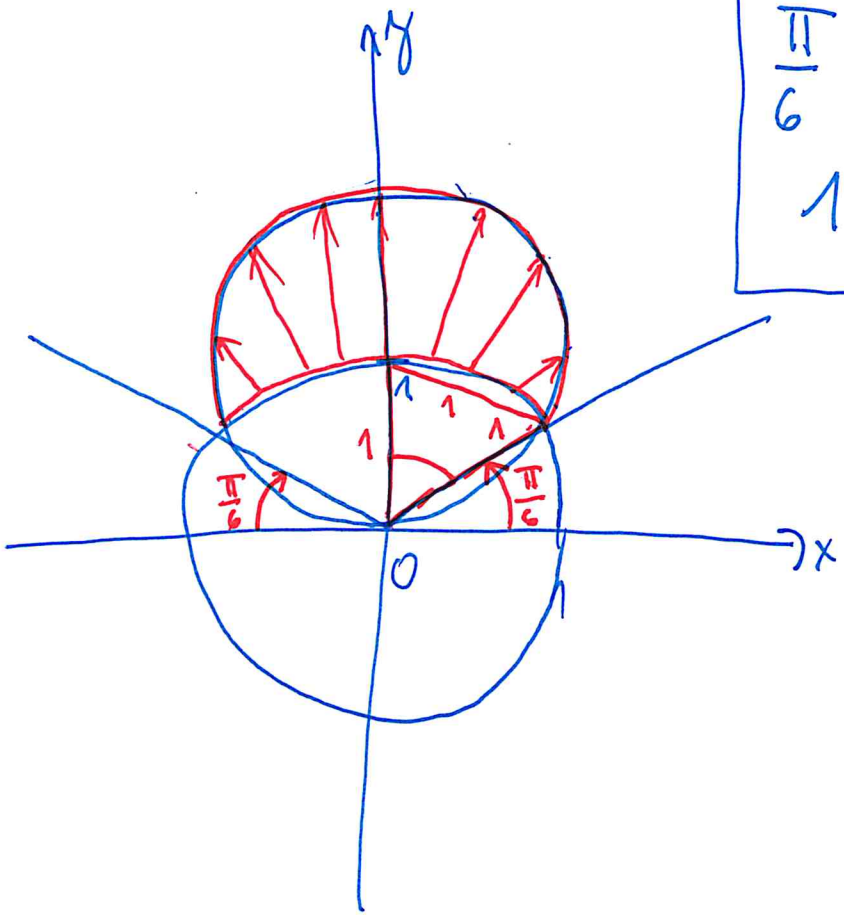
$$\varrho \cdot (\varrho - 2\cos\varphi) = 0$$

$\varrho = 0$

$\boxed{\varrho = 2\cos\varphi}$

$$0 \le \varphi \le \frac{\pi}{2}$$

$$0 \le \varrho \le 2\cos\varphi$$



$$\frac{\pi}{6} \le \varphi \le \frac{5}{6}\pi$$

$$1 \le \rho \le 2\sin\varphi$$

$$x^2 + (y-1)^2 = 1$$

$$x^2 + y^2 - 2y + 1 = 1 = 0$$

$$\rho^2\cos^2\varphi + \rho^2\sin^2\varphi - 2\rho\sin\varphi = 0$$

$$\rho^2 - 2\rho\sin\varphi = 0$$

$$\rho\cdot(\rho - 2\sin\varphi) = 0$$

$$\rho = 0 \qquad \rho = 2\sin\varphi$$