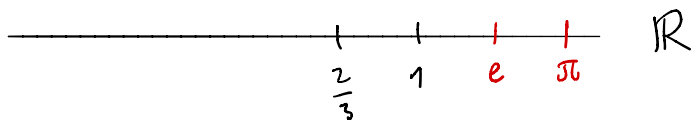


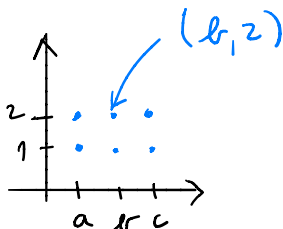
# VEKTORJI V $\mathbb{R}^3$



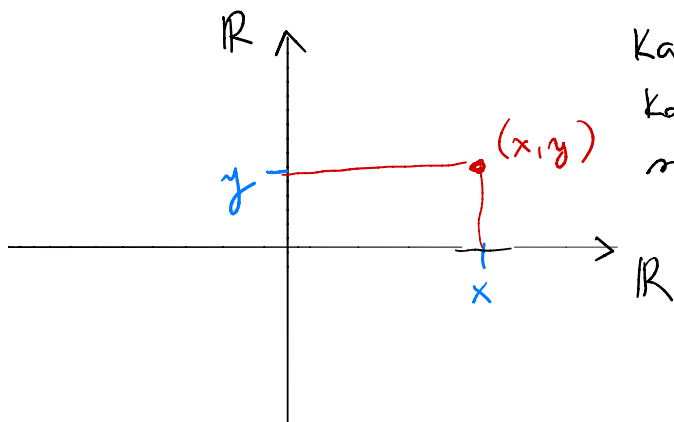
$\mathbb{R}^2$

$$A^2 = A \times A$$

$$\{a, b, c\} \times \{1, 2\}$$



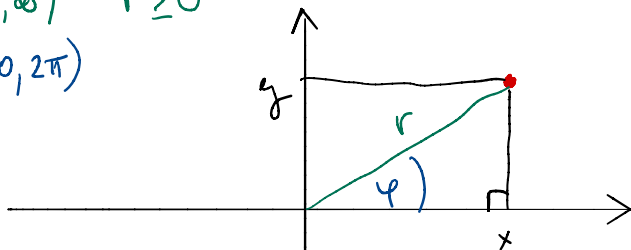
$$\mathbb{R}^2 = \mathbb{R} \times \mathbb{R} = \{ (x, y); x, y \in \mathbb{R} \}$$



Kartezijani  
koordinatni  
sistem

$$r \in [0, \infty) \quad r \geq 0$$

$$\varphi \in [0, 2\pi)$$



Polarni  
koordinatni  
sistem

$\pm, \pi$  kr.

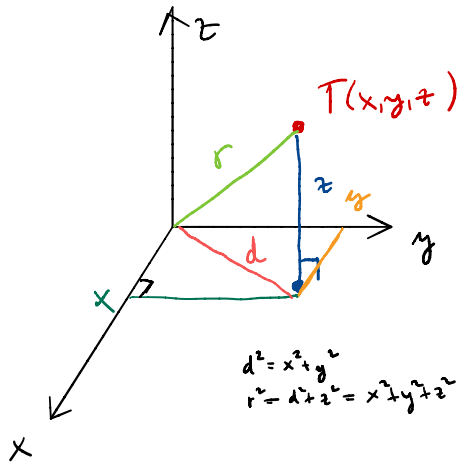
$$\varphi = \arctan \frac{y}{x} \quad ?$$

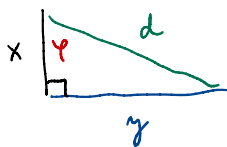
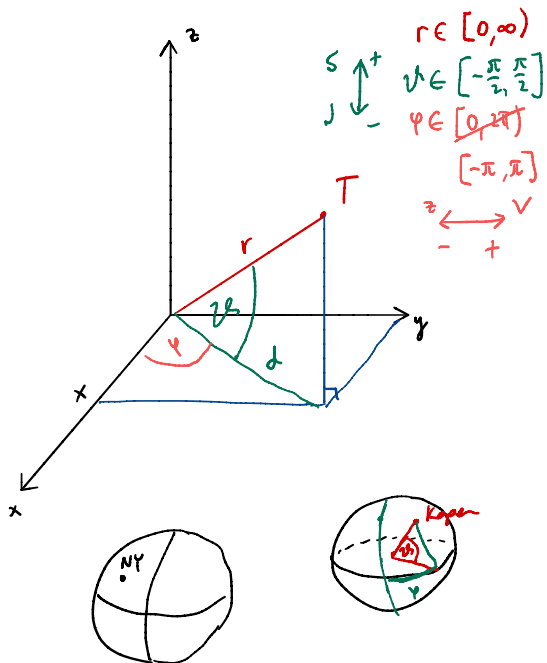
$$\tan \varphi = \frac{y}{x}$$

$$x = r \cos \varphi, \quad y = r \sin \varphi$$

$$x^2 + y^2 = r^2 \quad r = \sqrt{x^2 + y^2}$$

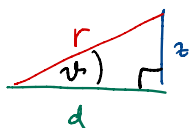
$$\mathbb{R}^3 = \mathbb{R} \times \mathbb{R} \times \mathbb{R} = \{ (x, y, z); x, y, z \in \mathbb{R} \}$$





$$\frac{x}{d} = \cos \varphi \quad x = d \cos \varphi$$

$$\frac{y}{d} = \sin \varphi \quad y = d \sin \varphi$$



$$\frac{d}{r} = \cos \theta \quad \frac{z}{r} = \sin \theta$$

$$\begin{aligned}
 x &= d \cos \varphi = r \cos \theta \cos \varphi \\
 y &= d \sin \varphi = r \cos \theta \sin \varphi \\
 z &= r \sin \theta
 \end{aligned}$$