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Polära

$\mathbb{R}^2$
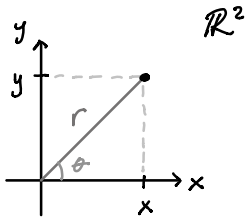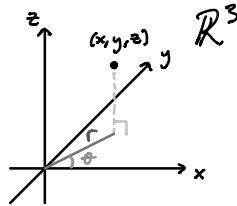

$$\begin{cases} x = r\cos\theta \\ y = r\sin\theta \end{cases}$$

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

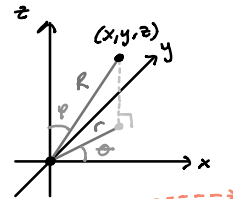$$\tan\theta = \frac{y}{x}$$

Cylindriska

$\mathbb{R}^3$

$$\begin{cases} x = r\cos\theta \\ y = r\sin\theta \\ z = z \end{cases}$$

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

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

$$z = z$$

Sfäriska

$$\begin{cases} x = R\sin\varphi\cos\theta \\ y = R\sin\varphi\sin\theta \\ z = R\cos\varphi \end{cases}$$

$$R = x^2 + y^2 + z^2$$

$$\tan\varphi = \frac{\sqrt{x^2+y^2}}{z}, \quad \tan\theta = \frac{y}{x}$$

"$R\sin\varphi$ spelar samma roll som r hos cylindriska koordinater"