

$$\begin{pmatrix} x_R \\ y_R \end{pmatrix} = \underbrace{r}_{\text{Scaling}} \cdot \underbrace{\begin{pmatrix} \sin y & -\cos y \\ \cos y & \sin y \end{pmatrix}}_{\text{Rotation}} \begin{pmatrix} x_K \\ y_K \end{pmatrix} + \underbrace{\begin{pmatrix} t_x \\ t_y \end{pmatrix}}_{\text{Translation}} \quad (1)$$