from trigonometry import sin, cos

$$M = \begin{bmatrix} S\_v_1 & S\_v_2 \\ S\_v_2 & S\_v_3 \end{bmatrix} \begin{bmatrix} cos\left(theta\right) & -sin\left(theta\right) \\ sin\left(theta\right) & cos\left(theta\right) \end{bmatrix}$$
$$v = \begin{bmatrix} \left(M_{1,1}, M_{2,1}\right)^T \ TP & \left(M_{1,2}, M_{2,2}\right)^T \ TP \end{bmatrix}$$

where

- $S\_v \in \mathbb{R}^3$
- $theta \in \mathbb{R}$
- $TP \in \mathbb{R}^{2 \times 3}$