

$$\begin{aligned}
 \vec{v}_1 \times \vec{v}_2 &= \begin{pmatrix} x_1 \\ y_1 \\ z_1 \end{pmatrix} \times \begin{pmatrix} x_2 \\ y_2 \\ z_2 \end{pmatrix} = \begin{pmatrix} y_1 z_2 & -z_1 y_2 \\ z_1 x_2 & -x_1 z_2 \\ x_1 y_2 & -y_1 x_2 \end{pmatrix}
 \end{aligned}$$

x_1

y_1

z_1

x_1

y_1

z_1