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Cartesian Unit Vectors

The inverse of a two-by-two matrix is given by

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}^{-1} = \frac{1}{ad - bc} \begin{pmatrix} -d & -b \\ -c & -a \end{pmatrix}.$$

Given

$$\hat{m{r}} = \cos heta m{i} + \sin heta m{j}, \quad \hat{m{ heta}} = -\sin heta m{i} + \cos heta m{j},$$

invert a two-by-two matrix to solve for i and j.

✓ Completed

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