

WORKSHEET 10/12/23
MATH 2331, FALL 2023

- (1) Suppose that $\mathfrak{B} = \{\vec{v}_1, \vec{v}_2, \vec{v}_3\}$ is a basis for \mathbb{R}^3 . What is $[\vec{v}_2]_{\mathfrak{B}}$?
- (2) Suppose that $A = S^{-1}BS$. Are A and B similar?
- (3) Suppose that T is a linear transformation with matrix A , and that $A = SBS^{-1}$. In which basis does B represent T ?
- (4) Describe the columns of $[T]_{\mathfrak{B}}$.
- (5) Is there a basis for \mathbb{R}^2 in which reflection over the line L is represented by a diagonal matrix?
- (6) Is there a basis for \mathbb{R}^2 in which a 90 degree rotation is represented by a diagonal matrix?