

Class Name: Homework Title

November 30, 2025

Your Name Your Student ID

Some new commands

1.

$$\mathbf{v}_1 = \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}$$

2.

$$\|\mathbf{v}_1\| = 1$$

3.

$$P_{\mathcal{B} \leftarrow \mathcal{A}} = \begin{bmatrix} 4 & -1 & 0 \\ -1 & 1 & 1 \\ 0 & 1 & -2 \end{bmatrix}.$$

4.

$$\mathbb{R}^3 \quad \mathbb{Q} \quad \mathbb{Z}$$

Solution

latex :

```

1  1.
2  \[
3  \vec{v}_1 = \bmat{0 \ 1 \ 0 \ 0}
4  \]
5
6  2.
7  \[
8  \Vmat{\vec{v}_1} = 1
9  \]
10
11 3.
12 \[
13 \cchco{A}{B} = \begin{bmatrix}
14     4 & -1 & 0 \\
15     -1 & 1 & 1 \\
16     0 & 1 & -2
17 \end{bmatrix}.
18 \]
19
20 4.
21 \[
22 \R{3} \quad \quad \Q{} \quad \quad \Z{}
23 \]
```