

# **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.

$$\|v_1\| = 1$$

3.

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

4.

$$\mathbb{R}^3 \times \mathbb{Z}$$

### Solution

latex :

```

1 1.
2 [
3 \vecv_1 = \bmat{0 \\ 1 \\ 0 \\ 0}
4 ]
5
6 2.
7 [
8 \Vmat{\vecv_1} = 1
9 ]
10
11 3.
12 [
13 \ccchco{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 \Q{} \quad \Z{}
23 ]

```