

Name:

1. For each of the following statements, write the word “true” or “false.”

(a) Let A and B be two $n \times n$ matrices. Then $\det(A + B) = \det A + \det B$.

(b) Let A and B be two $n \times n$ matrices. Then $\det(AB) = (\det A)(\det B)$.

2. Let $T : \mathbb{R}^3 \rightarrow \mathbb{R}^3$ be given by

$$T(x, y, z) = (x - y + z, -x + 2z, 2x - 2y + z).$$

Give the matrix $[T]_C$, where C is the ordered basis $\{(0, 0, 1), (1, -1, 0), (-1, 0, 1)\}$.