

21001, Section 01, Linear Algebra and applications  
HW 10, DUE Wednesday, April 27  
Instructor: Prof. Artem Zvavitch  
GOOD LUCK!!!

**Problem 1.** Find the transition matrix from basis  $B$  to basis  $B'$  if

$$B = \{(1, 0, 0), (0, 1, 0), (0, 0, 1)\}$$

and

$$B' = \{(2, 4, -6), (1, -4, -6), (1, 2, -1)\}.$$

**Problem 2.** Consider basis  $B$  and basis  $B'$  from the previous problem.

- Let  $[x]_B = (1, 2, 3)$ , find  $[x]_{B'}$ .
- Let  $[x]_{B'} = (1, 2, 3)$ , find  $[x]_B$ .

**Problem 3.** Find the transition matrix from basis  $B$  to basis  $B'$ , and the transition matrix from  $B'$  to  $B$  if

$$B = \{(1, -1, 0), (0, 1, 1), (-1, 0, 1)\}$$

and

$$B' = \{(2, 4, -3), (1, 0, 0), (1, 2, -1)\}.$$

In addition

- Let  $[x]_B = (1, 1, 1)$ , find  $[x]_{B'}$ .
- Let  $[x]_{B'} = (1, 1, 1)$ , find  $[x]_B$ .