

## Homework 11

Due Wednesday, May 10

MATH 231

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**Exercise 1.** Complete the following exercises from Section 6.2 in the course textbook:

# 11, 13, 17, 19, 21, 35, 37, 38, 41

**Exercise 2.** Let  $\mathbf{v} = \begin{bmatrix} 3 \\ 4 \end{bmatrix}$ , and let  $W = \text{span}\{\mathbf{v}\}$ . Let  $T: \mathbb{R}^2 \rightarrow \mathbb{R}^2$  be given by

$$T(\mathbf{u}) = \text{proj}_W(\mathbf{u})$$

(In #41 in Section 6.2, you established that  $T$  is a linear transformation.) Find the matrix  $A$  satisfying  $T(\mathbf{u}) = A\mathbf{u}$  for every  $\mathbf{u} \in \mathbb{R}^2$ .

**Exercise 3.** Complete the following exercises from Section 6.3 in the course textbook:

# 1, 3, 5, 7, 31, 32