

Math 304, Section 5 — Quiz 6 – February 25

Name: _____

1. Let B be an ordered basis for \mathbb{R}^2 . Explain, in an English sentence (no mathematical symbols) the meaning of the notation $\begin{pmatrix} a \\ b \end{pmatrix}_B$.

2. Suppose that E is the standard basis of \mathbb{R}^2 , and B is the ordered basis $\left(\begin{pmatrix} 1 \\ 1 \end{pmatrix}, \begin{pmatrix} 1 \\ -1 \end{pmatrix}\right)$. Find the numbers a and b , where

$$\begin{pmatrix} a \\ b \end{pmatrix}_E = \begin{pmatrix} 2 \\ -1 \end{pmatrix}_B$$

3. Find the length of the vectors

$$\begin{pmatrix} 2 \\ -1 \end{pmatrix}_B \quad \text{and} \quad \begin{pmatrix} 2 \\ -1 \end{pmatrix}_E$$