QUIZ November 6, 2013

Clicker Instructions: A = True; B = False;
C = I don't know; D = No truth value
correct = 1pt; don't know = 0pt; wrong = 0pt

1. Let
$$\mathcal{B} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}, \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
be a basis for $\mathbb{R}^2$. Let $\mathbf{x} = \begin{pmatrix} 1 \\ 2 \end{pmatrix} \in \mathbb{R}^2$. Then
$$[\mathbf{x}]_{\mathcal{B}} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}.$$

2. Let
$$\mathcal{B} = 1 + t, 1, \quad \mathcal{C} = 1, t$$
be two different bases for $\mathbb{P}_1$. Then the change of basis matrix from $\mathcal{B}$ to $\mathcal{C}$ is
$$P_{\mathcal{C}\leftarrow\mathcal{B}} = \begin{pmatrix} 1 & 1 \\ 1 & 0 \end{pmatrix}.$$

3. Suppose that $\mathcal{B}$ and $\mathcal{C}$ are two bases for a vector space V. Then
$$P_{\mathcal{C}\leftarrow\mathcal{B}} = P^{-1}_{\mathcal{B}\leftarrow\mathcal{C}}$$