Math 2250, Fall 2011, Quiz 13   **December 7, 2011**   **R. Bruner**

In the first two problems, do not calculate. Think, instead.

1. Find the coordinates $[x^2 + 2x]_{\mathcal{S}}$ if $\mathcal{S}$ is the standard basis $\{1, x, x^2\}$ of P_2.

2. Find the coordinates $[x^2 + 2x]_{\mathcal{B}}$ if $\mathcal{B}$ is the basis $\{x^2 + 2x, x + 1, 1\}$ of P_2.

3. Diagonalize the matrix
$$\begin{bmatrix} 2 & 3 \\ 3 & 2 \end{bmatrix}$$