

Name: \_\_\_\_\_

**Math 2250, Fall 2011, Quiz 11**

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The set  $\mathcal{B} = \{x^2 + 1, x^2 + x, (x + 1)^2\}$  is a basis for  $P_2$ .

1. Find the coordinates  $[1]_{\mathcal{B}}$ ,  $[x]_{\mathcal{B}}$  and  $[x^2]_{\mathcal{B}}$ .
2. Find a dependence relation between the polynomial  $x^2 + x + 1$  and the elements of  $\mathcal{B}$ .