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Show all work. 5 points each.

1. Find the coordinate vector for  $\mathbf{p}(t) = 1 + 4t + t^2$  relative to the basis  $\beta = \{1, 1 + t, 1 + t + t^2\}$ .

2. Find a basis for the space of spanned by the vectors below. Hint: Set it up as matrix and use maple or calculator to row reduce.

$$\begin{bmatrix} -3 \\ 1 \\ 2 \end{bmatrix}, \begin{bmatrix} 6 \\ -2 \\ -4 \end{bmatrix}, \begin{bmatrix} -1 \\ 2 \\ 5 \end{bmatrix}, \begin{bmatrix} 1 \\ 3 \\ 8 \end{bmatrix}$$