Math 231 — Hw 13

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1. Suppose p_0, p_1, p_2, p_3 is a basis of the space of polynomials of degree 3. Construct a basis where none of the polynomials are degree 2.

   Recall: the degree of a polynomial is the term with the maximum degree, for example this polynomial is degree 3: $x^3 + x^2 + x + 1$.

2. Suppose $\{v_1.v_2, v_3, v_4\}$ is basis of V. Prove that

   $$\{v_1 + v_2,\ v_2 + v_3,\ v_3 + v_4,\ v_4\}$$

   is also a basis of V.

3. Suppose $v_1.v_2, v_3, v_4$ is basis of V. Prove that

   $$\{v_1,\ v_1 + v_2,\ v_1 + v_2 + v_3,\ v_1 + v_2 + v_3 + v_4\}$$

   is also a basis of V.