

$$a \cdot (1,1,1) + b(-1,0,1) + c(1,2,3) = (0,0,0)$$

$$(a-b+c, a+2c, a+b+3c) = (0,0,0)$$

3 28-10:01

$$a(x^3 - x + 1) + b(x^3 + x^2 - 2x) + c(x^4 + x^2 - x) + d(x^4)$$

$$(c+d)x^4 + (a+b)x^3 = 0$$

$$0 \cdot x^4 + 0 \cdot x^3 + 0 \cdot x^2 + 0 \cdot x + 0$$

$$\langle \pi \rangle = \langle N \rangle \quad u \in M \quad N = \{v_1, \dots, v_k\}$$

$$u = a_1 v_1 + a_2 v_2 + \dots + a_k v_k \quad v_i \in N$$

$$a_1 v_1 = \frac{1}{a_1} u - a_2 v_2 - \dots - a_k v_k \quad \frac{1}{a_1}$$

$$v_1 = \frac{1}{a_1} u - \frac{a_2}{a_1} v_2 - \dots - \frac{a_k}{a_1} v_k$$

$$\langle v_1, \dots, v_k \rangle = \langle u, v_2, \dots, v_k \rangle$$

3 28-10:35

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}, \dots$$

$$a_4 x^4 + a_3 x^3 + a_2 x^2 + a_1 x + a_0 =$$

$$a_4 x^4 + a_3 (-x)^3 + a_2 x^2 - a_1 x + a_0$$

$$2a_3 x^3 + 2a_1 x = 0 \quad \begin{matrix} a_3 = 0 \\ a_1 = 0 \end{matrix}$$

$$f = a_4 x^4 + a_2 x^2 + a_0$$

3 28-11:09