$$P(t) = c_0 + c_1 t + c_2 t^2 + \dots + c_n t^n$$

$$q(t) = d_0 + d_1 t + t^2 d_2 + \dots + c_m t^n$$

$$(p+q)(t) = p(t) + q(t) \quad , \quad \text{Anta } n \leq m$$

$$= (c_0 + d_0) + (c_1 + d_1)t + \dots + (c_n + d_n)t^n + (0 + d_{n+1})t^{n+1} + \dots$$

$$\dots + (0 + d)_m t^m$$

Polynom

Underom, Bevis teorem 1

$$H = \text{Span}\{\bar{v}_1, \dots, \bar{v}_n\} \text{ underom}$$

a) $0 \in H: \quad \lambda_1 \bar{v}_1 + \dots + \lambda_n \bar{v}_n$

$$\lambda_1 = \dots = \lambda_n = 0 \Rightarrow \bar{v} = 0$$

b)
$$\left.\begin{aligned} v &= \lambda_1 v_1 + \dots + \lambda_n v_n \\ \mu &= \mu_1 v_1 + \dots + \mu_n v_n \end{aligned}\right\} v, w \in H$$

$$(v + w) = (\quad) + (\quad)$$

$$= \lambda_1 v_1 + \mu v_1) + \dots + \lambda_n v_n + \mu v_n$$

$$= (\lambda_1 + \mu_1) v_1 + (\lambda_n + \mu_n) v_n$$

$$\in H = \text{Span}\{v_1, \dots, v_n\}$$

c) $v = \lambda v_1 + \dots + \lambda_n v_n$, $c \in \mathbb{R}$

$$cv = c\lambda_1 v_1 + \dots + c\lambda_n v_n$$
$$= c(\lambda_1 v_1 + \dots + \lambda_n v_n)$$

4.1.1

$$V = \left\{ \begin{bmatrix} x \\ y \end{bmatrix} : x \geq 0 , y \geq 0 \right\}$$

a) $u + v$ ~ i V sich ...

b)

:

$$\text{Null } A = \{ x \in \mathbb{R}^n : Ax = 0 \}$$

a) $A0 = 0$, $0 \in \text{Null } A$

b) $x, y \in \text{Null } A$

$Ax = 0$, $Ay = 0$

$A(x + y) = 0 + 0 = 0$

$x + y \in \text{Null } A$

c) $c\,x$

$x \in \text{Null } A \Rightarrow A x = 0$

$A(c\,x) = c\,A x = c\,0 = 0$