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#flo

1 | Polynomials

- See [KBrefPolynomial](#) ## 0 polynomial
- Has degree $-\infty$
- Degrees are usually positive, except for the 0 degree
- “that’s too hard, and we’re not going to do it here” ## Identically zero
- Like 0 or $0x^0$
- Most polynomials are sometimes zero, but polynomials that are “identically zero” means that it’s always zero (instead of just sometimes zero)

$\mathcal{P}_m(F)$

- Polynomials with coefficients in F whose highest degree is m
- It can’t be “whose degree is exactly m ” because otherwise you won’t have the identity and it won’t be closed under addition (in the case where coefficient sum $a_m + b_m = 0$) ### It’s a finite dimensional vector space
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$$a_0z^0 + \dots + a_mz^m + b_0z^0 + \dots + b_mz^m = (a_0 + b_0)z^0 + \dots + (a_m + b_m)z^m$$

Proof of 2.16

- Structure: proof by contradiction

2 | Linear Independence

- “non-trivial” means “simplest possible”, which has usually got the most zeros
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