Source: [KBe2020math530floIndex]

#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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$$a_0 z^0 + ... + a_m z^m + b_0 z^0 + ... + b_m z^m = (a_0 + b_0) z^0 + ... + (a_m + b_m) z^m$$
