

Gandini Notes on Gröbner Bases

$$\left[\begin{array}{ccc|c} 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 2 \end{array} \right] \approx \left[\begin{array}{ccc|c} 1 & 0 & -1 & -14 \\ 0 & 1 & 2 & 11 \end{array} \right]$$

$F[x]$ is a PID: principal ideal domain. So we have that:

$$(f_1, f_2) = (\gcd(f_1, f_2))$$

In $F[x]$ the smallest monic polynomial in I generates I .

$\implies F[x]$ is a PID.

Remember Bezout's:

$$\implies \gcd(f_1, f_2) = af_1 + bf_2$$

$$\implies \gcd \in I = (f_1, f_2)$$