# Computational Algebra. Homework 11

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2 de mayo de 2022

# Homework

1. Modify the codes produced in the class so the powers computed in parts $2(b)$ in Algorithm 1 and 3 in Algorithm 2 are performed via repeated squaring.
2. Implement a complete factorization algorithm for polynomials with coefficients in a finite field based on Algorithms 1 and 2 above and the squarefree factorization algorithm of one of the previous sessions.
3. Run your implementation for polynomials of the form $f = ab^2c^2d^6e^8 \in \mathbb{F}_{11}[x]$ and $\mathbb{F}_{23}[x]$.

# Homework(Hint)

```
RSpower[_, 0] := 1;
RSpower[x_, n_] := Module[{q, r},
                          módulo
   {q, r} = QuotientRemainder[n, 2];
             cociente y resto
   Return[RSpower[x, q]^2 * x^r];
   retorna
  ]
```