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Factoring some polynomials over \mathbf{F}_2

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Prove that

$$\frac{x^{11} + 1}{x + 1}$$

(with coefficients in \mathbf{F}_2) is irreducible.

Prove that

$$\frac{x^{23} + 1}{x + 1}$$

(with coefficients in \mathbf{F}_2) is the product of two irreducible eleventh-degree polynomials.

Prove that

$$\frac{x^{47} + 1}{x + 1}$$

(with coefficients in \mathbf{F}_2) is the product of two irreducible 23^{rmd} -degree polynomials.
