```
> # Notes on homework 2
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```
> p:=x^12+x^9+x^8+x^6+x^4+x+1;
  q:=x^11+x^10+x^6+x^5+x^4+x^3+1;
```

$$p := x^{12} + x^9 + x^8 + x^6 + x^4 + x + 1$$

$$q := x^{11} + x^{10} + x^6 + x^5 + x^4 + x^3 + 1$$

```
> # Computation of over GF(2)
  Factor(p) mod 2;
  Factor(q) mod 2;
  Gcd(p,q) mod 2;
```

$$(x^7 + x^3 + x^2 + x + 1)(x^5 + x^2 + 1)$$

$$(x^6 + x^5 + x^3 + x^2 + 1)(x^5 + x^2 + 1)$$

$$x^5 + x^2 + 1$$

```
> # Computation over the integers Z
  factor(p);
  factor(q);
  gcd(p,q);
```

$$x^{12} + x^9 + x^8 + x^6 + x^4 + x + 1$$

$$x^{11} + x^{10} + x^6 + x^5 + x^4 + x^3 + 1$$

$$1$$

```
>
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