The Quadratic Reciprocity Law (4)

Eisenstein's Lemma

P ≠ Q **odd** prime numbers

$$(-1)^M = \left(\frac{Q}{P}\right)$$

M = # of lattice points

in the interior of △(0,0)-(P,0)-(0,Q)

with **even** x-coord

The Quadratic Reciprocity Law (5)

Example (P=17, Q=13)

M = 52

$(-1)^{52} = 1$

13 is QR (mod 17)

$13 \equiv 64$

$\equiv 8 \times 8 \pmod{17}$