

# RATIONAL MULTIPLICATIVE INVERSES

# Why

What is the multiplicative inverse of [(a, b)] in the rationals?

### Result

**Proposition 1.** The multiplicative inverse of  $[(a,b)] \in \mathbf{Q}$  if  $b \neq 0_{\mathbf{Z}}$  is [(b,a)].

### Notation

We denote the multiplicative inverse of  $q \in \mathbf{Q}$  by  $q^{-1}$ . We denote  $q \cdot (r^{-1})$  by q/r.

### **Division**

We call the operation  $(a,b) \mapsto a/b$  rational division.

