



**Why**

We want to order the rationals.

**Definition**

Consider  $[(a, b)], [(b, c)] \in \mathbf{Q}$  with  $0_{\mathbf{Z}} < b, d$ . If  $ad < bc$ , then we say that  $[(a, b)]$  is *less than*  $[(b, c)]$ .<sup>1</sup> If  $[(a, b)]$  is less than  $[(b, c)]$  or equal, then we say that  $[(a, b)]$  is *less than or equal to*  $[(b, c)]$ .

**Notation**

If  $x, y \in \mathbf{Q}$  and  $x$  is less than  $y$ , then we write  $x < y$ . If  $x$  is less than or equal to  $y$ , we write  $x \leq y$ .

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<sup>1</sup>One needs to show that this is well-defined. The account will appear in future editions.



