$$\overline{\mathbb{Q}}_n = \frac{p/q}{0 \leqslant p \leqslant q \leqslant n}$$

$$\frac{p}{q} < \frac{p'}{q'} \underset{\text{mediant}}{\Longrightarrow} \frac{p}{q} < \frac{p+p'}{q+q'} < \frac{p'}{q'}$$

$$\frac{p}{q} \underset{\min}{<} \frac{p'}{q'} \Longrightarrow \frac{p}{q} \underset{\min}{<} \frac{p+p'}{q+q'} \underset{\min}{<} \frac{p'}{q'}$$

$$p\,(q+q') - (p+p')\,q = p\,q' - p'\,q = 1$$

$$(p+p')\,q' - p'\,(q+q') = p\,q' - p'\,q = 1$$

Ford circle

$$C_{a:b} = \frac{x + iy \in \mathbb{C}}{\overline{\underbrace{x - \frac{a}{b}} + i\,\underbrace{y - \frac{1}{2b^2}}}} = \frac{1}{2b^2}$$

$C_{a:b}$ adjacent $C_{c:d} \Leftrightarrow \frac{a}{b}$ adjacent $\frac{c}{d}$