

$$a = qk + r \quad 0 \leq r < a \quad (1)$$

$$a = qk' + r' \quad 0 \leq r' < a \quad (2)$$

$$qk + r = qk' + r' \quad (3)$$

$$q(k - k') + (r - r') = 0 \quad (4)$$

$$r' = r + p \quad (5)$$

$$0 \leq r' < a \quad (6)$$

$$0 \leq r + p < a \quad (7)$$

$$-p \leq r < a - p \quad (8)$$

$$p = 0 \quad (9)$$

$$r' = r \quad (10)$$