Theorem

$$a \equiv b \pmod{n} \iff n|(b-a).$$

Proof, part 1.

$\boxed{\Longrightarrow}$ Let us assume that $a \equiv b \pmod{n}$. Then

$$a = q_1 n + r,$$
$$b = q_2 n + r.$$

Then we compute

$$b - a = (q_1 n + r) - (q_2 n + r) = q_1 n - q_2 n + r - r = n(q_1 - q_2).$$

Therefore $(b-a)$ is a multiple of n.