Prove the one theorem which is assigned to your Group. Be sure to follow the Writing Guidelines.

Theorem 1. Let $n \in \mathbb{N}$ and $a_1, a_2, b_1, b_2 \in \mathbb{Z}$. Let

$$a_1 \equiv a_2 \pmod{n}$$

and

$$b_1 \equiv b_2 \pmod{n}.$$

Then

$$a_1 + b_1 \equiv a_2 + b_2 \pmod{n}.$$

Theorem 2. Let $n \in \mathbb{N}$ and $a_1, a_2, b_1, b_2 \in \mathbb{Z}$. Let

$$a_1 \equiv a_2 \pmod{n}$$

and

$$b_1 \equiv b_2 \pmod{n}.$$

Then

$$a_1 b_1 \equiv a_2 \cdot b_2 \pmod{n}.$$

Theorem 3. Let $n \in \mathbb{N}$ and $a, b, c \in \mathbb{Z}$. If

$$a \equiv b \pmod{n}$$

and

$$b \equiv c \pmod{n},$$

then

$$a \equiv c \pmod{n}.$$

Optional Thinking Land Space