Proposition 2.7(iii): Let $m, n, p, q \in \mathbb{Z}$. If $0 < m < n$ and $0 < p \leq q$ then $mp < nq$.

Proof. Your proof goes here. □

Proposition 2.11: Let $m \in \mathbb{N}$ and $n \in \mathbb{Z}$. If $mn \in \mathbb{N}$ then $n \in \mathbb{N}$.

Proof. Your proof goes here. □

Proposition 2.12(i): If $m, n \in \mathbb{Z}$, then

$$-m < -n$$

if and only if

$$m > n.$$

Proof. Your proof goes here. □

Proposition 2.12(iv): Let m, n, and $p \in \mathbb{Z}$. If $m \leq n$ and $0 \leq p$, then $mp \leq np$.

Proof. Your proof goes here. □

Proposition 2.20: For all $k \in \mathbb{N}$, $k \geq 1$.

Proof. Your proof goes here. □

Proposition 2.A: The integer 1 is not divisible by 2. That is, $2 \nmid 1$.

Proof. Your proof goes here. □

Proposition 2.B: Let $A = \{3x - 1 : x \in \mathbb{Z}\}$ and let $B = \{3x + 8 : x \in \mathbb{Z}\}$. Then $A = B$.

Proof. Your proof goes here. This proposition is admittedly not very interesting; I have assigned so you can practice showing that two sets are the same. Follow the template from our proof in class of Proposition 2.13. □