Proposition HW5.1: The integer 1 is not divisible by 2. That is, $2 \nmid 1$.

Proof. Your proof goes here. □

Proposition HW5.2: 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. □

Proposition 2.21: There are no integers x such that $0 < x < 1$.

Corollary 2.22: Let $n \in \mathbb{Z}$. There are no integers x such that $n < x < n + 1$.

Proposition 2.23: Let $m, n \in \mathbb{N}$. If n is divisible by m, then $m \leq n$.

Proposition 2.24: For all $k \in \mathbb{N}$, $k^2 + 1 > k$.

Proposition 2.27: For all $k \in \mathbb{Z}$ such that $k \geq 2$, $k^2 < k^3$.

Project 2.35: Compute $\gcd(4, 6)$, $\gcd(7, 13)$, $\gcd(-4, 10)$ and $\gcd(-5, -15)$. You do **NOT** have to prove that you have found the gcd. But you do have to exhibit the integers x and y in the definition of the gcd.